July 2017
2016 ANNUAL
GREEN ROOF
INDUSTRY SURVEY
EXECUTIVE SUMMARY

GREEN ROOFS
FOR HEALTHY CITIES
www.greenroofs.org
ON THE COVER: Green Roofs for Healthy Cities 2016 Awards of Excellence winning projects

Top row: (Left) Bridgepoint Active Healthcare, image courtesy Diamond Schmitt Architects; (Right) Edgeland Residence, image courtesy Dave Mead
Upper Middle row: The Javits Center Green Roof, image courtesy David Sundberg/Esto
Lower Middle row: (Left) Trent University Farm, image courtesy ZinCo Canada (Middle) Tech Deck, image courtesy Meriko Reed (Right) Williamsburg Condominium, image courtesy New York Green Roofs
Bottom row: Alberta Ecoroof Initiative, image courtesy Bob Thornton

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Acknowledgements

This report was prepared by Blaine Stand, Membership Coordinator and Steven W. Peck, GRP, Honorary ASLA, Founder and President, Green Roofs for Healthy Cities.

Green Roofs for Healthy Cities would like to thank its corporate members for their participation in the 2016 Annual Green Roof Market Survey.
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July 13, 2017

Green Roofs for Healthy Cities is the non-profit industry association for the green roof and wall market in North America. We develop and protect the market through education, advocacy, and celebrations of excellence. One of our initiatives is the Annual Green Roof Industry Survey. This represents the 13th year that Green Roofs for Healthy Cities has surveyed the development and growth of the green roof market in North America.

Green Roofs for Healthy Cities would like to thank its corporate members for their participation which makes this survey report possible and encourage more members to participate next year.

We look forward to working with you all to advance the industry through education, advocacy, celebrations of excellence, events and look forward to seeing you at the 15th Annual CitiesAlive in Seattle, September 18-21.

Sincerely yours,

Jeffrey L. Bruce, GRP, FASLA

Steven W. Peck, GRP, Honorary ASLA
Executive Summary

Green Roofs for Healthy Cities is a member-based non-profit industry association dedicated to the growth and development of the green roof and wall industry in North America.

Every year, Green Roofs for Healthy Cities conducts an annual survey of its Corporate Members in order to collect data on the growth and composition of the green roof industry across North America. 2016 marks the 13th year that Green Roofs for Healthy Cities has conducted this Survey of its members and shared the results with a wide range of stakeholders.

The North American green roof industry experienced an estimated 10.3 per cent growth in 2016 over 2015. Though lower than the 18 per cent growth seen in 2015, this rate continues the double-digit growth the industry has experienced during most of the past decade. In 2016, 18 respondents recorded 889 projects in 40 US states and six Canadian provinces across North America, installing 4,061,024 square feet of green roofing. In the 2015 Annual Green Roof Industry Survey, 33 respondents recorded 7,483,717 square feet of green roofs across 1,219 projects. Participation rates differed this year for a variety of reasons including staffing and administrative changes. Details on growth rate was calculations can be found in the methodology section.

Based on average performance research, Green Roofs for Healthy Cities estimates that the 4,061,024 square feet of installed green roofs will yield the following benefits:
- 46.8 million gallons of stormwater retained per year;
- 141.5 tons of carbon sequestered every two years;
- 6.03 million kWh (equivalent) of energy saved per year;
- 1,583 full-time equivalent (FTE) construction jobs;
- 59 full-time equivalent (FTE) maintenance jobs annually.

In a marked departure from previous years, Toronto had the most square footage of green roofing installed in 2016, followed by Chicago. Washington, D.C., which has held the top spot for many years, came in third. Figure 1 shows the full top 10 breakdown of green roofs by metropolitan region as reported for 2016. As indicated, municipalities with supportive green policies continue to domination annual green roof installations.
Figures 2 and 3 show the top 10 breakdown of metropolitan regions in the United States and Canada respectively. Both graphs show several new municipalities reporting green roof construction in 2016.

Although the green roof market continues to grow, there is still an enormous potential for new green roofs to be installed on tens of billions of square feet of roof area across North America. Strong policy support in cities like Washington, D.C. and Toronto is driving market growth in these jurisdictions. Green Roofs for Healthy Cities encourages municipalities, regions, states, and provinces to adopt policies in support of green roofs and green walls in order to build healthier, more sustainable and resilient communities.

Public policy support is proven to help reduce the upfront costs of green roofs and monetize their many public benefits. The Benefits and Challenges of Green Roofs on Public and Commercial Buildings, a study by ARUP for the United States General Services Administration in 2011, found that over the course of 50 years an extensive light weight, low maintenance green roof would generate the equivalent of $38 per square foot of public benefits.
Methodology

Each year, Green Roofs for Healthy Cities’ corporate members voluntarily and confidentially provide information on a range of categories for each project installed or supplied in 2016. Once submissions are closed, the data is reviewed. Duplicate entries which occasionally arise from sourcing data from both suppliers and installers are removed from the data set to minimize the possibility of double counting projects by comparing the type, size, and location of each project.

The annual growth rate is determined to give a broad look at the overall health of the green roof market in North America. This growth rate is determined by comparing the previous year’s results with the current year’s results, controlled for respondents and total installation size. Annual industry growth rates are derived by determining the growth rate of a cross section of participant installation averages recorded by a median sample range of respondents. Installation totals are determined per data sheet and controlled for outliers, with the three largest and smallest values removed from the calculations, to obtain the most accurate overall average.

This method of growth rate is employed because of the anonymous survey submission process. In previous years individual growth rates were determined for participatory companies, but in an effort to ensure anonymity of the submission process for participants, these individual growth rates cannot be determined. Utilizing average installation values allows for growth rates to be determined while controlling for a variable sample size.

The square footage of reported green roof installations is then aggregated against several reported categories such as city; building type; green roof type; to analyze installation trends that may arise. Data is then parsed geographically to determine the top ten metropolitan regions for green roof installations in the United States, Canada, and North America as a whole. Metropolitan region aggregates are determined by mapping the project cities and then finding the largest metropolitan center in a 25 mile radius within the same province/state.

For the 2016 survey, 18 respondents supplied data compared to 33 for the 2015 survey. This difference in respondents is due in large part to several reported organizational and operational changes that left many previous participants incapable of submitting data for 2016. Green Roofs for Healthy Cities anticipates most if not all of these participants will return for 2017.

Green Roofs for Healthy Cities estimates that the data in this report generally understates the market activity by anywhere from 25 to 50 per cent given that not all firms in the industry are members of Green Roofs for Healthy Cities and not all members are able, or willing, to participate in the annual survey. Nonetheless, the data does provide important insight into the composition of the industry and its development. Due to the sample size of the submitted data, and the inability to collect installation data from every green roof company in North America, industry forecasting is not provided in the results of this survey, and observations are based purely on comparative reporting and current market state.

The survey report is made available to all Green Roofs for Healthy Cities corporate members as a membership benefit, along with access to all previous survey reports. The full data set is made available to all participants of the survey. Current and previous reports are available for purchase online at greenroofs.org.
Participants

Green Roofs for Healthy Cities would like to thank these companies for their participation in the 2016 Annual Green Roof Industry Survey.

In alphabetical order:

- Barrett Roofing barrettroofs.com
- Columbia Green Technology columbia-green.com
- Eco-Roofs eco-roofs.com
- Etera etera.com
- Ginkgo Sustainability ginkgosustainability.com
- Greenrise Technologies greenrisetech.com
- Highview Creations hvcnyc.com
- Jeffrey L. Bruce & Company jlbruce.com
- LiveRoof Ontario, Inc hillennursery.com/liveroof-ontario
- LiveRoof, LLC liveroof.com
- Living Roofs Inc livingroofsinc.com
- NextLevelStormwaterManagement nlsm.ca
- Omni Ecosystems omni-ecosystems.com
- Recover Green Roofs, LLC recovergreenroofs.com
- Roofmeadow roofmeadow.com
- Sempergreen / Moerings USA LLC sempergreen.com/us
- Soprema Canada soprema.ca
- Weston Solutions / GreenGrid Roofs greengridroofs.com

Participants and Advanced Corporate members receive a detailed database of projects.

The Green Pages Industry Directory, a full directory of GRHC Corporate members can be found at http://issuu.com/grhcna/docs/grhc.