



# LANDSCAPE PERFORMANCE SERIES

## Gary Comer Youth Center – Chicago, IL Methodology for Landscape Performance Benefits

### Environmental

- ***Creates a hospitable microclimate in the rooftop courtyard, with average temperatures between 20-30°F warmer on the roof in winter and 10°F degrees cooler in summer.***

Daily temperature readings taken from a weather station positioned in the center of the roof garden over the course of four years were averaged and compared with monthly climate data recorded at O'Hare Airport by NOAA. <http://www.crh.noaa.gov/lot/?n=ordmonthly>

### Social

- ***Produces 1,000 lbs of fruits and vegetables annually. Food from the rooftop feeds 175 children at the center each day, is distributed among four local restaurants, and is sold at a local farmers market.***

The annual yield is based on the amount of food harvested in 2009 and 2010. The 2009 yield and number of distribution points including the number of lunches provided each day were reported in the Summer, 2009 publication of Edible Chicago, posted July 22, 2009 by editor, Ann Flood. <http://www.thelocalbeet.com/2009/07/22/visiting-the-gary-comer-youth-center%E2%80%99s-rooftop-garden/>

2010 yields and distribution points were verified during an interview with GCYC Garden Manager, Marjorie Hess in July of 2011.

- ***Enriches a diverse educational platform, with approximately 600 students and community members ages 8-80+ participating in the garden learning programs and activities throughout the year.***

Participation numbers are gathered from the University of Chicago School of Social Service Administration's Spring 2011 Report, *Grand Vision* by Charles Whitakker. <http://www.ssa.uchicago.edu>

Participation statistics were verified by Garden Manger, Marjorie Hess in an interview conducted in July 2011.

### Economic

- ***Saves \$250 in annual heating and cooling costs as compared to a conventional roof by moderating heat gain and loss.***

Energy savings for the intensive green roof design are calculated using a Green Roof Calculator developed by the Portland State University Green Building Research Laboratory. <http://www.greenbuilding.pdx.edu/CalculatorInfo.php>

The Green Roof Energy Module provides a basic estimate for combined energy savings (Cost / Therms and cost /kWh) when compared to a conventional roof. The energy model is based on:

- the location and type of building,
- the surface area of the roof,
- depth of growing media,
- leaf area index
- and the percentage of plant coverage.

Electricity rates for the state of Illinois are based on the U.S. Department of Energy's *Average Retail Price for Consumers by Sector, Census Division and State, 2009*.

<http://www.eia.doe.gov/cneaf/electricity/esr/table4.xls>

The average cost of natural gas is 121.8 cents/ therm and 9 cents/kWh

(<http://www.npga.org/14a/pages/index.cfm?pageid=914>)

The total amount of energy saved is based on GCYC roof specifications and averaged energy costs, which is then interpreted by the Green Roof Energy Module. The estimated savings of 642.58 kWh and 156.53 Therms, generates an annual savings of \$248.80.