## Impact of green roofs on Sustainable Development

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**Abstract**: short-term economic interests and develop urban green space in comparison with other investments, the fund is less. Obligations of developed countries to environmental agreements and charters, as well as public pressure that environmental issues have a more informed view, creating an incentive to identify new solutions in the development of urban green space. Hancock, Ken (2006) The present study investigated the effects of green roofs on Stress boys soccer players 18-14 years. This quasi-experimental method with pre-test - post test and control groups were examined. Szewczyk, Z. (2003).

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#### 1. Introduction

Because of the high value of land in the metropolitan city of Tehran and the subsequent vertical growth, low green roof area of Tehran, the historical background of brick architecture of flowers, covered with moss, lichens and a variety of herbaceous plants on roofs of buildings in different parts of the country such as Azerbaijan, Gilan and Mazandaran, the roofs of traditional houses and mountainous countryside and is open late. Liu, K (2000). A very good example of that, where the roofs of village houses and village houses below the upper yard work. Banting, D (2005)

According to international standards of green space per capita in urban green space and its unfair distribution at the neighborhood level, using green roof technology on the roofs of Tehran seems to be a good option. Tehran green roofs can serve the purposes of preparation to be Green. Schwartz, S. (2005).

Green roofs of Tehran, the need for research and pilot projects to suit the local level is green technology. Peck, Steven W (1999).

. Today, in addition to Europe and America, Asian countries like Japan, Singapore, South Korea, UAE, Turkey and Hong Kong with green roof technology implementation at the local level, defining new standards in construction, law enforcement, and government subsidies the municipalities, in order to develop more green roofs are taking steps.

## 2. History

However, the plants on the roof cannot be seen as a new phenomenon.

Journey in cold countries like Scandinavia, Iceland and Switzerland has long been a method of growing plants on roofs of buildings used for insulation capability of the soil layers and plants with vegetative roofs, warm in the coldest areas of the building kept in the same way as in the tropical regions of Tanzania has prevented the penetration of heat into the outside. Liu, K (2000).

energy, new wave approach to the green roof, the new concept and, because of their environmental benefits and ecological solutions from northern Europe started as soon as the place opened in most European countries. Peck, Steven W (1999).

## 3. Operational definitions

## 3.1. Green roof

Meanwhile, Germany, Switzerland, France and Austria were advanced in comparison with other European countries and the wider activities in this field began. Germany in the late eighties, seeing a bit of green roofs in the urban scale is.



Fig.1: figure of the green roof

### 4. Importance and need for research

Due to in the present lack of exercise causes many physical symptoms of mental illness and psychological distress back will be. The green roof has a therapeutic effect on children and adolescents. Peck, Steven W (1999).

### 5. Research proposals

**1** - Participation in physical activity can reduce the stress, so it is responsible for growth and excellence in education in the schools to action.

2 - Due to increased motivation to participate in regular exercise programs are student-athletes, coaches and officials of education particular attention to the still too.

### 6. Conclusions

In the sixties, taking into consideration the environmental quality of urban and environmental threats such as pollution of the big cities, the rise of the urban heat island phenomenon, and so the energy crisis, green roofs, this time because of their environmental benefits as well as ecological solutions were considered. Late nineteenth and early twentieth century's can start a new wave of urban design and architecture, using the functional use of space as a roof or balcony. The first wave was rooted in a qualitative change in cities due to overpopulation, rising urban land prices and lack of open space, especially in urban centers, cities involved were.

Roofing the last century due to their practical interest these days because of their environmental benefits are green. This application can be used to match the building. If it is a public building, the roof space may be required in line with the neighborhood or the city will need a larger scale

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## References

- 1. Banting, D (2005). "Report on the Environmental Benefits and Costs of Green Roof Technology for the City of Toronto", Toronto.
- 2. Cruikshank, Don (2006). "TMP Consulting Engineers", Toronto.
- 3. Del Barrio, Elena P (1998). "Analysis of the Green Roofs Cooling Potential in Green Roofs, Energy and Buildings", Chicago.
- 4. Elliott, Christopher (2006). "Technical Sales Representative": Soprema Canada. Email Correspondence ,Toronto.
- 5. Hancock, Ken (2006). "Energy Management Co-ordinator, Physical Plant Services", Queen's University, Toronto.
- 6. Johnston, Jackly (2004). "Building Green: A guide to using plants on roofs, walls and pavements". Mayor of London; London.
- Kanter, Rob (2005). "Environmental Almanac: Trees, Green Space, and Human Well-being", Toronto.
- Kaplan, Rachel (1995). "The role of Horticulture in Human Well-Being and Social Development: A National Symposium". University of Michigan, Michigan.
- 9. Liu, K (2000). "Thermal performance of green roofs through field evaluation". NRC CNRC.
- Peck, Steven W (1999). "Greenbacks from the Green Roofs: Forging a new industry in Canada. P&A Peck and Associates, for CMHC/SCHL", Canada.
- Perry, M. D, (2003). "Green roofs offer environmentally friendly alternative", Plant Engineering, Barrington, Illinois.
- 12. Schwartz, S. (2005). "Green roof technology really taking root", Toronto Star. Toronto.
- 13. Sherman, R. (2005). "Compost plays key role in green roof mixes", BioCycle, v 46, no3, March.
- Szewczyk, Z. (2003). "Designing for waterproofing and maintenance", Greening Rooftops for Sustainable Communities Conference: Chicago.
- 15. Aysa N. September & Steven Peck, L'etude de cas sur un toit vert avec jardin d'herbe, "Fairmont Waterfront Hotel", Vancouver, The

Cardinal Group Inc., http://www. Cmhc-schl.gc.ca

- 16. Barret Jacky, Bertholon Patrick, Marie Xavier; Terrasses jardin, conception et amenagement des jardin sur toitures,dalles et terrasses, publication; Syros alternatives, 1988,
- 17. B. Bass, M. Kuhn, S. Peck, Des toitures vertes et des billets verts, Societe canadienne d'hypotheque et de logement Canada, 1998
- Isabelle Boucher, Document de ville ; Les toits verts, publication Affaires Municipales, Regions et Occupation du territoire Quebec, septembre 2006
- 19. Kuhn, Monika, Rooftop resource, 1995, http://www.cityfarmer.org/roofmonica61.html
- 20. Peck Steven, W. callaghan, C. Kuhn, E., Greenbacks from green Roof, Canada Mortgage and Housing Corporation, 1999.

21. Publication du Centre Helios, 29 oct. 2002, vol 1 - n 15

- 22. Roy F. Weston & al, Urban Heat Island Initiative Pilot Project, Chicago, Mai 2000.
- 23. S. Beckman, S. Jones, K. liburdy, C. Peters, Greening our cities, An Analysis of the benefits and barriers associated with Green Roofs, Portland State University, 1997.
- 24. Sheung, Lai, Rooftop Garden; planting seeds of service, The teacher's network, 2001 <u>http://www.Teachnet.org/docs</u> /Network/project/Boston/Sheung/
- 25. S. Peck, M. Kuhn, Lignes directrices de conception de toits verts, Societe canadienne d'hypotheque et de logement Canada,
- 26. Theodore Osmundson; Roof gardens, history, design and construction, publisher W.W Norton & company New York, 1999.

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