Rooftop gardens









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**Structure:**

*We can waterproof the roof and go ahead and put dirt straight onto it for a GREEN ROOF.. OR*

*We can build a DECK over the roof that is suitable for walking and supporting gardening containers*

*I prefer the roof deck over the greenroof idea just in case we need to repair the roof, sections can be taken easily taken out. Also structures can be attached to the deck such as a hammock shaded by a solar panel or grape arbor.*

<http://video.bobvila.com/m/21320195/roof-deck-construction.htm>

<http://ask.metafilter.com/62439/How-to-build-a-roof-deck>

No ground? Use containers

<http://www.journeytoforever.org/garden_con.html>

Urban Roof Deck Garden

<http://www.youtube.com/watch?v=hv8j8tN-qAU>

How to Create a Green Roof

<http://www.youtube.com/watch?v=2vL_IlN8peE&feature=related>

Building a Green Roof Part 1: Introduction Swarthmore College

<http://www.youtube.com/watch?v=w7TkcFQOvow&feature=related>

Swarthmore College

*For WATERPROOFING underneath your greenroof or roof deck. I sell this and LOVE IT! 215.253.2134*http://www.supertherm.net/multicera.htm

[http://dornob.com/rooftop-deck-designs-8-great-urban-green-roof-gardens/](http###dornob#com#rooftop#deck#designs###great#urban#green#roof#gardens##)

<http://www.epicurious.com/articlesguides/blogs/editor/rick_bayless/page/2/>



METAEFFICIENT - The largest modular green roof, has been installed on top of the new "Court at Upper Providence" shopping center in Pennsylvania. The 2.3 acres green roof was constructed with Green Grid modules. These modules are made with recycled plastic, and they contain small but hardly plants like sedums. The lightweight modules are then delivered to the facility, where they are laid out on top of the roof. As many as 4,000 square feet can be installed in one day.

HIGH RISE TOWN HOUSES WITH GARDENS

TREE HUGGER - Rotterdam designer Reinier de Jong notes: "Housing in big city centers seems to consist of small apartments. High rise equals apartments. Or so it seems. However many cities economically really need well-to-do middle class dwellers. They flee to suburbia as soon as salaries go up and kids arrive."

So he takes the standard suburban typology, the two story house with a garden, and stacks them on top of each other, "so we will diminish the suburban sprawl that is swallowing up our precious land."

"The project TUIN ('garden') combines high rise with a typical suburban housing typology: a two storey dwelling with garden. A height of seven meters and a depth of one meter of soil guarantees a true garden. Enough for sunlight, rain and wind to enter and nourish trees, shrubs, flowers and grass."

**THINGS TO THINK ABOUT:**

-- 4-page pdf:

http://rooftopgardens.ca/files/4pagerenglishWEB.pdf

"Guide to Setting up Your Own Edible Rooftop Garden", The Rooftop Garden Project -- Step-by-step guide to creating your own rooftop garden. For groups, individuals and establishments that would like to create an urban edible rooftop garden for educational, social, therapeutic or environmental reasons. Six chapters cover the main factors to consider: project definition, choice of site, setting up the garden, coordination of gardening activity, health choices and a detailed technical guide on rooftop container gardening, plus annexes with descriptions of Rooftop Garden Project gardens and additional information. 80 pages. Download pdf:

<http://rooftopgardens.ca/files/howto_EN_FINAL_lowres.pdf>

2.4 Access and Security

Several elements related to gardener’s access and safety must be analyzed before choosing the site. Access Practical Access and Roof Safety There should be an official access to the roof (stairway, elevator) to make the garden accessible to everyone. This access should be functional for transporting material to the garden. Access to Water for Plants Like sun, water is a fundamental need for plants. As rain does not always come on time, an access to municipal water is essential. You can also install a rainwater collection system by rerouting a gutter to a reservoir, for example. This solution will create a heavy load of water on the roof at random times, and the structural engineer should check the loading capacity in the designated place.

*RATHER than a single heavy water tower. I would spread the load of the water over the entire roof via collection reservoirs Under the planted containers.*

Access to Electricity An electrical source is very practical for construction work and develop- ment or for the simple pleasure of listening to music in the garden.

*I would need an outdoor covered GFI outlet electric to plug up my crock pot. Maybe connected to the solar panel or small windmill. How about a SOLAR OVEN. WINDCHIMES.*

Access to a Storage Area Plan an access to an area sheltered from inclement weather to store equipment, material and gardening tools. *Prevent RUSTING of tools*

Safety Peripheral Surveillance Informal (neighboring windows, passersby) or official (security guards, security cameras) 

surveillance will ensure the safety of gardeners and help avoid incidents in the garden (e.g. vandalism). Installation of an Enclosure or a Banister An enclosure or a banister should be 42 inches (1067 mm) tall and encircle the space designated as a garden. These protections must conform to regulations as mentioned in section 2.2

2.5 Specific Needs

If the garden’s clientele has specific needs, you must account for them from the beginning. Easy access will be an important issue if the garden is destined for elderly people or people with handicaps. Installing shady areas is recommended if seniors or young children use the garden.

2.6 Other Options

Note that if you plan a garden somewhere other than a roof, such as a terrace or a balcony, you must consider the same factors but on a smaller scale. A good start means having a structure that is up to norms, a space that is safe and functional and plenty of water and sun.

3.1 Prepare the Rooftop for Setting up the Garden If necessary, make a building plan (plans and general estimates) to prepare the rooftop for the garden and for gardening activities and to make certain it fits your budget. As this step must conform to certain building and safety norms, we suggest you call on professionals (see step 2). The plan must be designed in direct relation to the framing plan. The distribution of weight should be approved by the structural engineer, who can, if needed, identify structural modifications to be made. The framing plan is often completed by a short estimate that shows construction to be car- ried out, materials to be used and norms to be respected. As a general rule, heavy loads must be located near columns and beams located on the existing roof plans as they were drawn by the engineer. Once the plans have been drawn up (terrace site, access, construction details, location of equipment to be used, etc.) and approved by the structural engineer or completed using separate plans by the engineer, you must obtain a building permit from the city. Get information from your insurance company about changes to be made to your home insurance. Ideally, this step should be done simultaneously with step 3.2. Each phase will give you food for thought on the other. 22 guide to setting up your own edible rooftop garden

3.2 Imagine and Draw the Garden

a. Site Analysis Plan On paper or using drafting software, place the basic features as well as possibilities for and constraints of the site: sun areas (full sun, partial sun, shade), access to water and electricity, interior and exterior access, circulation areas, railing, special features related to safety, etc. Step 2 will be useful for creating the site analysis plan.

b. Garden Uses Make up a list of utilitarian and recreational uses that you would like to have in your garden: food production, relaxation and contemplation, gatherings, storage, rainwater recovery, area for doing manual labor, composting, etc. You can also use general concepts (permaculture, ecosystems, education- al garden) as inspiration or create thematic spaces (herbs, medicinal plants, children, horticultural experiments, First Nations, production, etc.).

c. Conceptual Plan On the analysis plan, place different uses and thematic spaces you have chosen for the garden by drawing and annotating areas or bubbles. Determine the size of areas according to your needs and priorities. Make sure that the finished product is functional and, or course, inspiring.

d. Development Plan You now have everything you need to give shape to your garden. On a new drawing, copy the conceptual plan and draw the real shape and loca- tion of different spaces (production, relaxation and storage areas; butterfly garden, etc.) and features (benches, compost bin, pergola, etc.) in detail.Be creative! Think about the unity and balance of the garden, about how to highlight features, about lines and forms, about textures and colors. You can create an overall theme or personalized spaces. Work to scale. The most common scales are: ¼ in. = 1 ft. or 1:50 in metric values. You can use grid paper when you are doing the rough sketches to make the task easier. Leave sufficient space around gar- den beds or containers to make garden- ing easier. Take the location of a drain on the roof into account. It should be accessible at all times to drain water from the sur- face. Water must not be obstructed from reaching the drain. Make several drawings while brain- storming. Don’t hesitate to work in groups. Choose the most stimulating and most functional plan afterward. Keep in mind that you can always change the de- sign as things progress if necessary. There is a wide selection of books on landscaping and garden design. Visit your library or a local bookstore for in- spiration.

**Conceptual plan**

storage *Tools, BOOKS and lot’s of stuff*

SHADED relaxation area

Place to make sun tea

production zone

composting area

seedlings & seedling table

climbing plants

gathering area

circulation people, air and water garden’s central walkway

food production area

*SOLAR DEHYDRATOR area*

hydro-ponic system

rainwater recovery

compost

garden shed 2 garden shed 1

pergola

rainwater barrel

benches

climbing plant dome

rainwater barrels

*A sink is handy and maybe even a composting toilet*

*TRIM TREES that might shade out your roof garden OR use shaded area for relaxation*

3.3 Build the Infrastructure and Lay Out the Garden

a. Building the core infrastructure Start construction using plans approved by your city. If major work on the access, the terrace or the railing is to be done, we recommend you hire a building professional (a general contractor that will take care of all the con- struction). It is always preferable to request bids from three contractors to ensure you get a fair market price. If you do not have a contractor, look for a person with experience in construction or someone who is handy that can supervise and coordinate volunteers’ work. Sometimes it is very practical to establish a construction schedule so that combined efforts converge on an opening date for the garden. Look out for late work, delays, bad surprises, extra costs and other unexpected problems. **The infrastructure could be made of modular, detachable parts to allow access to the rooftop at all times in case there is a leak or maintenance must be done.** You will find an example of such parts in Annex D. To optimize use of materials and reduce costs, use recycled or reused materials as often as possible. For better longevity, use treated wood.

b. Build Garden Features Using the development plan, start construction on structural features like a pergola, an arbor, benches, etc., as well as functional features like compost bins and rainwater barrels. You can create them using technical designs you have drawn or found in construction manuals. You can also let your imagina- tion take over when the task is at hand. Several features can be bought.

c. Construct Growers Decide what type of grower is suited to your needs. Here are some cri- teria to consider: dimensions (height, width, depth) shape productivity (depth of growing mix according to plant choice, water reservoir, dimensions, etc.) durability and maintenance of material mobility (weight, wheels) aesthetics (color, style, material) Build the number of growers needed according to your feeding needs and the available space. See chapter six for models and for construction plans. • • • • • •

Engineer’s Verification If the project calls for changes to the structure or significant addi- tions during construction, having the structural engineer check the completed construction is recom- mended to get his or her final ap- proval. This is particularly impor- tant if you install a pergola, a shade structure or a wind breaker on a high roof because strong winds could blow the panels off making the installation dangerous.

LADDER

Philadelphian may need to install 

Mini-JOMY® Retractable Ladder: The Mini-JOMY® is the ideal access solution for residential and light commercial applications up to 25 feet. With the simple release of latch, the Mini-JOMY® folds out into a 20 1/2" wide ladder with slip-resistant rungs. The ladder is burglar proof! It can only be opened with release of the latch. The ladder remains closed when not in use; thus snow and ice cannot accumulate on the rungs. The Mini-JOMY® meets ICBO & BOCA building codes and is guaranteed to provide a lifetime of maintenance-free operation.

JOMY® Counter-Balanced Ladder: The only nationally available Counter-Balanced Ladder. All aluminum construction with nylon bushings and stainless cables and fasteners provide a life-time of rust-free and maintenance?free service. Counter-balance lead weights are concealed inside the patented side rails of the ladders to provide trouble-free use regardless of snow, ice or salt air.

<http://www.jomy.com/?gclid=CPqcg8u8paICFYNd5Qode3UrwQ>

*or  or*

[http://www.surespancovers.com/ladders-zipretractable.htm](http###www#surespancovers#com#ladders#zipretractable#htm#)

*I am all for a PULLEY system to raise and lower stuff. Shelter pulley to keep rain from rusting it out.*

c

*Might as well put in a dumbwaiter for roof to basement root cellar and storage*

These plans are more deluxe. To inspire us to do SOMETHING. Let us know what you do and how it fares.