



## Green Roof Mini-Course

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## Lesson 1: It doesn't have to cost a fortune

Welcome to the Green Roof Plan Mini-Course.

"How much was it?" That's usually the first question people will ask about your new green roof.

"What did it cost?"

Besides being a bit rude, this question has it the wrong way around. As with any purchase that you don't have to make, the real question for a green roof is, "Is it worth it to you?"

But even if you don't tell your friends how much it set you back, the cost of your green roof doesn't have to break the bank.

The least expensive green roof type, an extensive green roof with a thin layer of specialized substrate and sedums or similar succulent plants, only costs a few thousand dollars for a small roof area, such as on a single-car or smaller dual-car garage.

What's more, you also have a very good chance of making your money back. Here's why:

Your green roof surface will last far longer than a non-green roof. For spaces that you live in, such as your home, the reduction in heating and cooling costs are also considerable.

Because green roofs are so desirable, you may also be able to collect higher rents or a higher sale price when you rent or sell your house in the future.

On top of that, if you get any enjoyment or satisfaction out of the green roof at all, the decision is easy. It's just a matter of whether you want to make an investment today that will likely pay for itself over time.

And so, as the answer to that inquisitive friend, just say, "not that much - and it paid for itself over time in reduced roofing replacement costs, heating and cooling savings, increased property value, and satisfaction."

Well, that wraps up today's lesson.

Tomorrow we'll be talking more about extensive green roofs, one of the most popular green roof types for single family homes, and the lowest cost to install.

Knowing more about extensive green roofs will help you pick the best green roof for your climate and needs.

Thanks for reading and see you next time,

Dave

## Lesson 2: Extensive green roofs are an easy call

Roofs are a major pain to homeowners. The roof surface is constantly degrading, leaking, peeling back, and finally, after just ten years or so, needing to be replaced.

Also, a typical roof gives very little protection to the building it sits on top of, nor to its occupants. Yes, the direct sunlight, rain, and snow are blocked - but the heating and cooling needs caused by the weather outside are scarcely mitigated at all.

An extensive green roof is the cure. An extensive green roof has a thin layer - 6" or less - of soil substitute, called substrate, that nourishes specialized plants, often from a succulent family called sedums.

With an extensive green roof, your plant choices are restricted - but your rooftop replacement costs, and heating and cooling costs, are greatly reduced.

The cost-benefit analysis is likely to be your driving factor behind choosing an extensive green roof. The factors to look for include:

### Rooftop replacement

Rooftops have to be replaced frequently due to the impact of sunlight, especially ultraviolet (UV) rays. That's right, the same wavelengths of light energy from the sun that cause skin cancer also cause your rooftop's underlying material to break down.

### Heating costs

A green roof is likely to cut your heating costs by helping to retain natural heat, plus the heat that you pay big bucks to bring into your home. The green roof is like a hat on a bald head - it retains warmth, cutting your costs.

### Cooling costs

With a green roof, your house never heats up so much when the sun beats down on it. This reduces not only the cost of running your air conditioner, it reduces roof replacement costs by lowering peak high temperatures.

An extensive green roof keeps you off the peaks, and therefore is likely to save you money. It also features lower costs for structural strengthening, setup, and maintenance. You can always do more later if you decide to do so, but an extensive green roof is a worthy starting point - and perhaps ending point - on your adventure.

Of course, there's a lot more to extensive green roofs. You can read all about installing, choosing plants, and maintaining your extensive roof in my new eBook "Creating My Green Roof."

Here's the link to go check it out:

<http://www.greenroofplan.com/ebook>

In it you'll also learn:

\*How to calculate the approximate costs of your green roof, and how long it will take to break even against your lower heating and cooling costs

\*How to find, hire, and get the most from contractors and green roof service providers

\*The time of year to begin installing your green roof for best results

\*How to choose the best plants for your project

And much, much more.

Well, that wraps things up for today. Tomorrow we'll talk about the other main variety of green roof: the intensive green roof.

Talk soon,  
Dave

PS: The eBook carries a full 60-day money back guarantee, so you can buy it confident that you're facing no risk at all. That link again is:

<http://www.greenroofplan.com/ebook>

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## Lesson 3: Intensive Green Roofs, max investment for max reward

Today's lesson is about the most beautiful and satisfying (but also most cost- and labor-intensive) variety of green roofs: the intensive green roof.

The dream of a green roof goes back at least as far as the Hanging Gardens of Babylon - a giant green roof, on a ziggurat no less, with every type of plant you can imagine. A feast for all the senses, and available to you today.

All you have to do is to consider an intensive green roof - basically, a green roof with soil depth of 8" or more - a modular green roof, with fixed planter boxes for the plants that need more depth - or a combination. Then you can do... well, not quite whatever you want, but a combination.

Here are the main things to consider if you are thinking about an extensive green roof:

### Structural capacity

How much additional weight can your roof handle? Does it have strong points, where modular units can safely be installed, and weak points, where an extensive-type roof with much less soil depth is the only option? Is there a reasonable cost to upgrade the whole roof to intensive-type capacity, and are you willing to pay it?

### Startup costs

It's wonderful to have, or to help create, a rooftop that can bear a lot of weight. But getting all the substrate, that irrigation system you're likely to need, and, not least, all those plants up on the rooftop, arrayed and installed correctly, is likely to cost a fair amount of money, creative effort, and time.

### Maintenance

Perhaps you can afford to put anything you want on your green roof, but can you muster, or buy in, the time and skill required to keep it all alive and thriving? Can you keep the new roof garden watered to an optimal level? Will weeding and fertilizing be more work than you can handle? Be ready for the same issues as a ground-level garden, plus the additional heat, wind, and dryness that are more likely as you move further above ground.

### Resale value

It's easier to get your money back from an extensive green roof with its thinner substrate, as the savings in roofing costs, plus heating and cooling costs for a residential space, pretty much pay for the whole thing. An intensive green roof, though, might not be a buyer's cup of tea if he/she is not willing to commit to keeping the roof in good health.

### Enjoyment

This is the wild card in the deck when it comes to green roofs. It's so exciting and fun to have an intensive green roof, or a modular one with lots of variety, that cost, for those who have the resources, can become secondary. You may also be able to find renters or buyers, down the road, who share your enjoyment, and will help you recoup at least some of your investment.

The first question in creating a green roof is always structural capacity. Find out what your structure can easily support - and then do the cost/benefit analysis, and try to gauge your appetite for really enjoying your green roof, from there

That's it for today, thanks for reading. Tomorrow we're going to talk about one serious green roof mistake, and how to avoid it.

Till next time,  
Dave

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Dave Hilary is a green roof enthusiast based in Washington, DC and author of "Creating My Green Roof," a guide to help homeowners set up a low cost and energy-saving green roof. You can read more about the eBook here: <http://www.greenroofplan.com/ebook>

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## Lesson 4: Avoid this costly installation blunder

Green roofs have a lot going for them, but when you are talking about a vital part of your home, it pays to be very careful because installing one incorrectly could damage your roof surface or the underlying structure, and leave your house prone to leaks.

In fact, there are a few common errors that - if you make them - will ultimately require you to tear out your green roof and start over from square one.

Today I want to talk to you about one of these errors and how you can avoid it:

### Key Error #1: Not Getting a Professional Structural Assessment Before You Start

Green Roofs, even when properly drained, usually weight at least a dozen more pounds per square inch than a conventional roof. Therefore, it is Absolutely Critical to makes sure that your structure can support the added weight of a green roof.

Any threat, even just an unanswered concern, around structural soundness is enough to make a green roof project into a burden, rather than a pleasure.

And if sagging or other damage does occur, the problem will be far more expensive to fix than it would have been to prevent. When it comes to structural considerations for green roofs, an ounce of prevention really is worth a pound of cure.

Getting advice from a qualified structural engineer is critical before proceeding with your green roof. In support of this, you'll also want to see "existence proofs" - local examples of similar structures and green roof projects that have stood the test of time.

The "local" part is important because the impacts of snow, rain, wind, sunshine, and other factors vary so much from one local area to another, and vary from year to year as well.

That's it for today, but I want to remind you that I talk about several other costly mistakes that you need to avoid on your green roof project in my new eBook "Creating My Green Roof." Here's the link:

<http://www.greenroofplan.com/ebook>

Avoiding these mistakes can literally save you tens of thousands of dollars - not a bad value for a \$14.95 eBook.

The book also carries a money back guarantee for 60 days and, if you download now, comes with two very valuable pieces of bonus content: a guide to picking the right type of green roof for your property, and a set of snappy responses to common arguments against installing a green roof - very handy for convincing a reluctant spouse or condo co-owner.

Thanks for reading! Tomorrow's lesson is about the importance of community when putting in a green roof.

Talk soon,

Dave

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## Lesson 5: It takes a village to raise a green roof

Most people like to do as much by themselves as possible. The very phrase used for most home improvement projects is "do it yourself" - with the implication being that the homeowner is doing all of the work, or at least managing suppliers and workers in a very hands-on, and top-down, way.

But thinking of yourself as part of a community - the overall community in which you live, as well as the community of green roof enthusiasts around you - will lead to better results.

The first area in which local help can be extra valuable is plant selection. Gardeners of all stripes love to meet (both online and off), and rooftop gardeners are no exception. In fact, because green roofs are still relatively rare, and because rooftops are harsher, less accessible places, the stakes for plant selection are higher with green roofs than with earthbound gardens.

So talk, talk, talk to people - other green roof gardeners, people at the local nursery, and so on.

The second area in which local help is a great choice is in using local suppliers. This means everything from the people who sell you plants to the people who prepare the surface of your green roof to drain properly, the first time and every time.

Every person you talk to is a source of help and advice for finding more local expertise.

Using local suppliers helps you develop community, gives you the chance to ask questions, and brings you local expertise on your concerns, over and over. The connections you build will be useful for years to come, and may mature and grow right along with your green roof!

Another area in which local help is a great resource is in networking with current and potential green roof gardeners. Many people who already have green roofs will be surprisingly interested in helping you succeed.

They'll gladly share connections, information, demonstrations of their own green roofs, and more. You may even develop connections with people who you can trade off maintenance chores with during vacation trips and so on.

Even as you're learning from people who took the plunge before you, take the opportunity to "pay it forward". Share the experience of creating your green roof with people who might someday consider raising a green roof of their own.

People who are thinking about taking on such a project may well be interested in hearing about your own efforts every step of the way.

Seek such people out, perhaps through your contacts with local suppliers and existing green roof owners, and keep them up to date. You might be surprised by the extent to which explaining your thinking to others helps you do a better job yourself!

Well, that's it for today. Thanks for reading and talk soon.

Dave

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## Lesson 6: Soil and Substrates

Most green roofs don't use the kinds of topsoil you might find in your garden for one simple reason - weight. On most roofs weight is a concern, and topsoil tends to retain water and take on a lot of added weight, which could put unwanted stress on your structure.

Here's a rundown of the four most popular materials that you can blend together with smaller amounts of topsoil to strike the right balance of nutrients (provided by the soil) with low weight to allow your green roof to flourish.

### Expanded Clay

Unlike its natural cousin, this clay is man made in rotary kilns at about 2200 degrees F. The clay is formed into balls and then it expands under heat so that it is porous. It has no nutrient value but it is PH neutral.

### Expanded Slate

Again, through the use of heat the stone generates internal gasses that end up making it porous. It will expand many times its original volume and becomes a very lightweight aggregate.

### Expanded Shale

This material is described by gardeners as "puffed rock." It has 3 highly desirable characteristics. It is stable, does not crumble, is lightweight and it holds water, air and nutrients. It is especially effective when combined with clay soils to lighten them and remove some of the poor growing characteristics they have.

### Pumice

Pumice forms from volcanoes as they eject a frothy rock, or when lava comes into contact with water. The rock is very porous, up to 90 percent when initially formed

Green roofing isn't all "fun and games" time for a little homework! Lightweight substrate blends are just one component of a green roof system made up of several other specialized materials.

I've written another article that can help you understand the other main components of your green roof, which is tonight's reading assignment. Here's the link:

<http://www.greenroofplan.com/green-roof-materials-from-the-bottom-up/>

That's all for today. Be sure to look out for tomorrow's lesson which is all about plants and how to find the right ones for your green roof.

Till next time,

Dave

## Lesson 7: Plants, Sedums and more!

Today we get to the “green” part of the green roof minicourse! (whoopie!) Today’s lesson is all about how to select the right plants for your green roof. There are several factors that you should look at when picking plants. Here are just a few:

### **Native or not?**

Some people take a purist approach, using only locally available plants. Unfortunately, the hotter, drier conditions on rooftops are often unfriendly to commonly available local plants.

### **Insect and bird-friendliness**

Local plants are more likely to be friendly to local insects, and insects attract birds. A few shrubs or even, where possible, small trees can increase the spaces for native fauna.

### **Diversity**

The rooftop equivalent of a lawn – some kind of monoculture, with just one plant type – certainly gets the job done in terms of heating and cooling, protecting the roof surface, and easier maintenance. However, monocultures are a bit...boring! Consider introducing diversity, either from the start or over time, after the initial plantings are established.

The other major consideration when it comes to selecting plants is the amount of effort you are willing to dedicate to maintaining and irrigating them. This is why sedums are a natural choice for many home-owners putting in a green roof.

Sedums, which are a family of succulent plants related to cacti, are an ideal choice because:

1. They require little irrigation once established;
2. They can grow in very shallow soil, which makes them perfect for the shallower extensive green roofs; and
3. They require little to no maintenance – perhaps pruning and weeding once a year.

There are many different sedum varieties to choose from, and I’ve written about a few of them in an article on my blog, which you can check out here:

<http://www.greenroofplan.com/sedums-101/>

Well, that’s it for today. Thanks for reading and ‘till next time!

Dave

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## Lesson 8: Graduation Day (I'm so proud... sniff)

Well you made it! From cost planning, to extensive and intensive, from substrates to sedums. Thanks so much for reading this mini-course, and I hope you've found it useful.

My wish is that you see now how fun and rewarding creating a green roof can be. Not only do they make economic sense, but they are great for urban, suburban and rural ecosystems and, best of all, they are a great way to have fun and get involved with your local green community.

All I ask is that if you liked the course, maybe share it with a friend, and go forth and spread the good green roof word to your friends, family and neighbors.

If you have any questions or suggestions for improving the mini-course or site content, I'd love to hear from you (you can reply to [dave@greenroofplan.com](mailto:dave@greenroofplan.com)).

Also, in case you might have missed any of the lessons, I've collected them all on one page on my site which you can access here:

<http://www.grennroofplan.com/minicourse-full>

Many people have been asking for more green roof tips and tricks, so I will do my best to keep 'em coming. Make sure to keep checking [www.greenroofplan.com](http://www.greenroofplan.com) for updates, and you can also follow me on Twitter at [www.twitter.com/greenroofplan](http://www.twitter.com/greenroofplan).

Thanks again for reading and talk soon.

Sincerely,  
Dave Hilary

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