



Green Roofs

Build up consists of Sealoflex CT System followed by a layer of 2" extruded polystyrene as insulation (this is optional) and it may be preferable to reverse this and place the Sealoflex CT on top of the insulation. On top of this is laid the "Sealogreen" dimple board, which is available in Sealogreen 50 and Sealodrain 100. Soil is laid onto the top of the dimple board in layers ranging from as little as 2" to 16" depending upon the type of vegetation required.

The roofs are divided into two types:

1. Extensive (low maintenance, small plants, low weight)
2. Intensive (high maintenance, shrubs & small trees, higher weight)

The Sealogreen 50 layer consists of a base layer of Geofabric, followed by a perforated dimpled plastic layer and finally covered by a copper hydroxide impregnated geofabric layer. This is used exclusively in "extensive roofs" The base layer allows water to escape freely. The dimpled plastic layer is designed to hold water in the dimples but the perforations will allow excess water to escape. The dimples that hold the water release moisture by evaporation into the root layer above keeping the plants fed with the necessary moisture. The top layer of geofabric, which is impregnated with the copper hydroxide, prevents fines from escaping into the drainage system and also repels the roots of the vegetation above. This insures that the roots will not grow down into the drainage system and ultimately block the drainage system.

The "extensive" green roof system is entirely different from that employed in "intensive" green roofs and planter boxes where we use the regular Sealodrain 650 product. The reason for this is that the soil depths are much greater and we can rely on the growing medium to retain water for much longer than the shallow soil layer we have in the "extensive" system (2" to 6"). The "intensive" green roof is designed around relatively shallow soil depths (>6") to keep the weight of the system as low as possible. The Sealodrain 650 drainage layer ensures that roots are not always in a saturated soil layer, which will in many cases cause root rot. In both systems the Sealodrain and Sealogreen drainage layer provides superior aeration to the roots.

Extensive Roofs

The "extensive" system is the more popular and about 80% of all green roofs are made in this way. This system uses the Sealogreen 50 where the dimples which hold the water are approximately 1/2" deep. Soil thicknesses vary from 2" to 6" and will have a weight of approximately 10 to 40 pounds per square foot, which is a relatively low weight system.

The types of plant used in the "extensive" roof are grasses, wildflowers and Sedum plants (any one of a genus of low-growing herbaceous plants that grow naturally in rocky places and have fleshy leaves and clusters of white, yellow, or pink flowers). Plants found on extensive roofs usually have the following properties:

- Wind tolerant
- Low growing
- Lateral root system
- No irrigation required. This system can rely upon rainfall only in most cases.



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The soils used in these systems are usually 20% organic, which make them lighter in weight. The total weight of the “extensive” green roof system will be:

- 10 lb./sq. ft. average for a 2” system
- 30 lb./sq. ft. average for a 6” system

The total cost of an “extensive roof will be between \$12 and \$20. This would consist of:

- Full Sealoflex CT System
- 2” extruded Polystyrene Insulation (optional)
- Sealogreen 50
- 3” to 6” Soil
- Plant Selection

This is based on the Sealoflex CT being priced at about \$2.50 to \$ 3.00 per sq. ft. installed. The 2” extruded polystyrene costs approximately \$0.50 per sq. ft. and the Sealogreen 50 will cost the contractor about \$1.25 per sq. ft. Naturally there is some minor cost in placing the insulation board and laying down the Sealogreen mat but, the rest of the cost is in the soil and plants

The variables here are whether or not insulation is needed, the quantity of soil needed for the choice of plants and the plant selection, which can vary greatly in price.

Intensive Roofs

The “intensive” green roof is used less since it is generally much more expensive and only represents 20% of green roofs installed. This system uses the Sealodrain 650. Soil thicknesses vary from 6” to 16” and will have a weight of approximately 50 to 100 pounds per square foot. Just for comparative purposes the live load design weight for a floor in a residence is usually 150 lb. / sq. ft.

The types of plants used in the “intensive” roof are larger plants such as shrubs and small trees, which may be mixed with other plants used in “extensive” roofs, but nevertheless the system as a whole will:

- be less wind tolerant because they are taller.
- require more maintenance (trimming, pruning, etc.)
- need regular irrigation (probably need sprinkler system)
- have a much smaller selection of suitable plants

The total cost of an “intensive” roof will be between \$30 and \$40. This would consist of:

- Full Sealoflex CT System
- 2” extruded Polystyrene Insulation (optional)
- Sealodrain 650
- 12” to 16” Soil
- Plant Selection



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This is based on the Sealoflex CT being priced at about \$2.50 to \$ 3.00 per sq. ft. installed. The 2" extruded polystyrene costs approximately \$0.50 per sq. ft. and the Sealodrain 650 will cost the contractor about \$1.00 per sq. ft. Again, there is some minor cost in placing the insulation board and laying down the Sealogreen mat. In the case of "Intensive" roofs the cost of plants, soil and irrigation are the major portion of the cost because of larger plants, more soil and installation of irrigation system.

Factors that would determine whether to use "Intensive" or "Extensive" are as follows:

- Budget
- Structural.("Intensive" much heavier than "Extensive")
- Local Rainfall
- Water access for irrigation. "Extensive" very likely will not need irrigation.

Advantages of the Sealoflex Green Roof System

Green Roofs will provide the best known cool roof. For example a 6" extensive roof will create a 75% reduction in heat gain compared to a conventional black roof. When compared to a white roof a 6" "extensive" roof the surface temperature of the roof membrane will be 15 ° F cooler at midday in summer.

Some other obvious advantages are:

- Green space instead of synthetic roof surfaces
- Storm water retention- water flow off roofs is slowed down putting less demand on storm water systems
- Water from roofs is clean and filtered
- No problems with blocked drains
- Noise reduction
- Fire retardation
- Tax advantages – tax rebates already being offered by New York City, Seattle, Portland OR and Chicago

For further information regarding the type of vegetation that can be grown on the roofs there is a very informative website, namely: www.greenroofplants.com

We are very excited about getting involved in this relatively new market in the U.S. These systems have been perfected in Europe over the last 30 years with great success. We have no reason to believe that with the great emphasis being placed on environmental issues that this will not turn into a significant market. We are in the fortunate position to be in on the ground floor.