

GAIASOIL™ APPLICATIONS



<http://www.youtube.com/watch?v=m4V2rkRkPJs>

Lightweight Soil for Urban Rooftops



Expanded polystyrene blocks (EPS) or other forms of recycled EPS, are one starting component.

Blocks, packing materials, 'peanuts', cups, and other forms of expanded polystyrene can be shredded by a number of kinds of standard equipment, from planers to hammer-mills to certain kinds of paper shredders.

Lightweight Soil for Urban Rooftops



Shredded EPS

Expanded polystyrene can be finely shredded to create a capillary matrix for holding water. The material shown above was produced by shredding Styrofoam blocks

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Shredded EPS fragment

The small scale of the capillary matrix formed by finely shredded expanded polystyrene acts to hold water and resist water loss.

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EPS, water, clay, and other components before mixing

Lightweight soil can be made at a number of different scales, as pictures here in quarter cubic yard cement mixer. A batch can be made in about ten minutes.

Lightweight Soil for Urban Rooftops.

Finished mix of different sizes

Clumps or clusters at various scales are formed in the process of mixing the components of the lightweight soil.



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Cast blocks of lightweight soil

The lightweight soil and compost matrix can be cast into regular blocks or tiles, and fitted to sections of rooftops or decks.

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Examples of earth cast soils

Earth cast lightweight soil forms are shown here. Small amounts of cementitious materials may be used to increase cohesive qualities of the materials and to make more permanent, 'free standing' forms.

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Red Pine root ball of lightweight soil

The red pine pictured above was grown on a rooftop for about three years in a redwood planter in lightweight soil. The tree plus root and soil ball weigh less than 200 pounds.



Lafayette St. Corridor "After", capable of capturing \approx 450,000 gallons of water (ten year storm)

ENY BEFORE & AFTER



BEFORE:

compacted urban wasteland, ragweed patch adjacent to a bus depot, infiltration rate $< 1/8$ "/hr.

AFTER:

stormwater capture park, infiltration rate 12" - 24"/hr.

Increasing biomass to improve infiltration

