Efficient New Roof

Friday, 22 February 2008

New improved roofing, insulation, and ventilation designs can easily cut both utility costs and carbon emission in half. Buying a new roof or retrofiting a roof can take 1-2 months from planning to completion. Utility savings payback the improvment cost in as 5-9 years, according to Energy Efficiency and Renewable Energy Clearinghouse (EREC). Here is a step by step process to prepare t install new roof:

first, fill out new roof checklist. The more information you can provide, the better a contractor can serve you. Second, get at least 3 written estimates and use the second section to record information collected during and after the estimate. Third, compare your written estimates and choose the one that's best for you based on price, product, warranty, and contractor quality.

Background

The sun radiates heat energy and raises roof temperature as much as 70 degrees above ambient temperatures. This temperature rise seals heat in attic systemos and increases cooling costs. Reflecting solar heat back out, emitting heat radiation, and transfering convective heat are ways roof materials can stay cool. Adding attic ventilation to improve roof convective transfer and thermal insulation to prevent solar heat from penetrating building ceiling can further improve energy efficiency and durability of roof systems. Energy efficiency has to come with durability to last for decades and low mainatenace cost against weather and elements. Factors which can shorten the lifetime of a roof include ultraviolet radiation from the sun, freeze-thaw cycles, wind, rain, damage from foot traffic, biological growth, chemical reactions with air pollutants, thermal expansion stresses due to temperature changes, and poor installation. Thus, if a cooler material is inferior from a cost or lifetime point of view compared to a warmer material, it's not a good deal.

Below is a temperature rise ranking of materials and coatings based on their solar reflectivity. See how A black opaque surface in the sun can become up to 70°F (40°C) hotter than the most reflective white surface. High solar reflectivity and high thermal radiation emissivity help reduce heat up to about 1/5 as mich as black materials above air temperature.

Roof Material Temperature Rise

material or coating type	temp rise
unsoiled bright white smooth coating on membrane, tile, or metal roof	15
clean white	

Fibergalss/EPDM rubber
20

rough white
any
35

light pastel colors pink
concrete tile
40

medium gray

aluminimum
bare metal roofing
48

Aluminum pigment on asphalt resin coating

50

clay fired ceramic red
spanish tile
55

bare galavanized steel
bare metal roofing
55

Built-Up Roof (BUR) covered with gravel
felt/asphalt shingle membrane
65

asphalt shingle light brown
with granules
70

Black

90

Checklist for Buying a New Roof

var sc_project=1866689;
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Age of the Home: Built In _____ or _____ Years Old

Age of the Existing Roof: _____ Years Old

Approximate Square Footage of Roof/Home: _____ /_____

Type of Existing Roof:

Asphalt Shingle _____

Tile clay fired ceramic red _____

Tile concrete pink _____

Metal galvanized steel coated _____

Metal aluminum, or copper coated _____

Membrane Felt/asphalt BUR(Built-Up Roof) _____

Membrame Fiberglass/PVC _____

Membrane Fibergalss/EPDM rubber _____

not sure _____

Roof Pitch: Exact Pitch _____or _____ Low-Sloped _____ Steep-Sloped _____ Not Sure

Any leaks? ____ Yes - Location_____

_____ No _____ Not Sure

Other Problems with Roof? _____ Yes (ex. poor drainage, broken or missing tiles, weather damage, etc.)

_____

_____ No

What, if any, repairs have been made to the roof?

_____

Get at least 3 written estimates for your New Roof and record the following information:

Company Name:

Price:

When can installation begin? _____ less than 1 week _____ 1-2 weeks _____ 3-5 weeks_____ more than 5 weeks

How long will this project take? _____ Days _____ Weeks

If the project takes take more than one day, what precautions will be taken to protect the unfinished work while the installers are away?

How long is the warranty? _____ Five-Year _____ Ten-Year _____ Twenty-Year _____ Lifetime _____ Other

Is the warranty transferrable if the home is sold? _____No _____Yes

List any restrictions on transferring the warranty :

_____

Is this an Energy Star Product? _____ Yes _____ No

(Energy Star products meet strict energy efficiency guidelines and will save energy.)

Is it Eligible for an Energy Efficient Tax Break? _____ Yes _____ No

What is the Roof's Emmissivity? _____

(A Roof's Emmissivity is how quickly it releases heat it has absorbed.)

What is the Roof's Reflectivity? _____

(The higher the number, the more reflective the roof.)

What type of maintenance does this roof require?

Is it safe to walk on this roof? _____ Yes _____ No

Are there any special features/advantages to this company and its roof?

Are there any drawbacks/disadvantages of this company and its roof?