## HOW YOUR TREE CAN SAVE ENERGY

Trees help keep your home cool in the summer in two ways: by shading your house and by making the air outside cooler. On the other hand, in the winter, the trees in your yard may increase your heating needs by blocking the sun. Therefore, it is important to select the right tree and plant it in the right place to maximize energy efficiency for cooling in the summer and heating in the winter. Large, broadleafed shade trees such as the burr oak, linden and hackberry are most effective shading the east and west windows of your home from the summer sun. Keep the south-facing windows unobstructed from the winter sun to reduce your need for heat in the winter.

EVERGREENS BLOCK NORTH WINDS IN THE WINTER
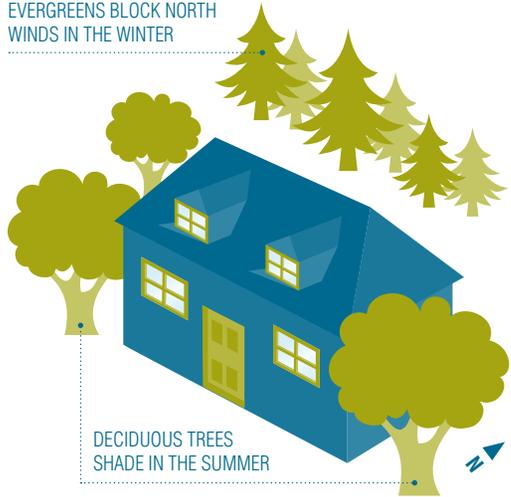
DECIDUOUS TREES SHADE IN THE SUMMER

Institute for Environmental Solutions
761 Newport Street
Denver, CO 80220

Phone: 303.388.5211
Fax: 303.388.3209

Solutions@i4es.org

INSTITUTE FOR
ENVIRONMENTAL SOLUTIONS

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# TREES' ENVIRONMENTAL BENEFITS:
SAVE ENERGY, BREATHE EASY

SCIENTIFIC SOLUTIONS
FOR A BETTER ENVIRONMENT

HOW TO SELECT YOUR TREE

Planting the right tree in the right place is especially important along the Front Range of Colorado. Many trees will struggle with the extreme temperatures and dry climate. Some trees require extra water, and some can even make our city's air pollution worse! To select the right tree, visit your local greenhouse or nursery, or find good options online at the Colorado State Forest Service's website: http://csfs.colostate.edu/allabouttrees.htm and at the Xcel Energy web site in their "Plant a Better Future" booklet at www.xcelenergy.com. Always take into consideration the tree's mature height and width; a tree that does not have enough room to grow will need trimming more often and may damage sidewalks. Also, consider planting a tree grown locally, as they may be hardier and better adapted to this climate.

HOW TO PLANT YOUR TREE

Dig a saucer-shaped hole for the tree that is just deep enough to keep the root collar – the bulge where the trunk meets the roots – above ground. It is very important not to bury the root collar. The hole should be three times wider than the root ball. Place the tree in the center of the hole vertically and refill with the soil you removed. Push the soil in around the roots lightly and water the soil to eliminate air pockets, but do not pack the soil. Spread mulch – a protective ground cover often made of shredded wood

DRIP LINE

DRIP LINE

KEEP MULCH FROM TOUCHING TREE TRUNK

2 TO 4 INCH LAYER OF MULCH

ROOT COLLAR
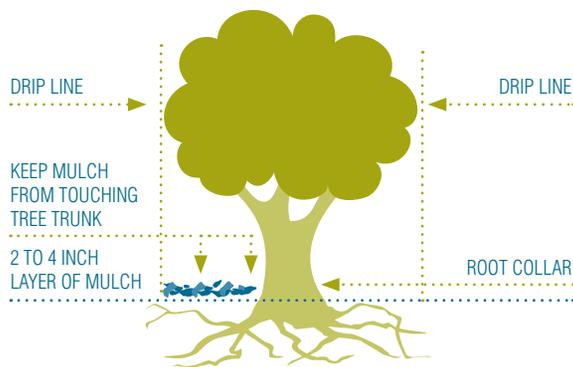
– over the whole area up to four inches from the trunk at a depth of two to three inches. Do not fertilize your tree for at least a year and do not plant trees under overhead utility lines; always call the utility locator hotline at 1-800-922-1987 before you dig.

HOW TO CARE FOR YOUR TREE

Regular tree maintenance is important to keep the tree healthy so it can provide the most environmental benefits. Water a tree deeply and slowly within the drip line – the circle formed by the tips of the branches farthest from the trunk. Tree roots can extend out 2 to 3 times the width of the drip line of the tree so be careful not to damage the root system when digging. Keep grass out of the drip line to minimize damage to the trunk from a lawnmower and to increase the water available to the tree. Trees need additional irrigation in Colorado's dry climate, especially in the establishment period of the first two years after planting.

The Community Tree Alliance recommends that trees should be watered once or twice a month during dry periods and they should receive 10 gallons of water per inch of trunk diameter.

THE ENVIRONMENTAL BENEFITS OF TREES

IMPROVING AIR QUALITY

Urban forests help reduce air pollution. Nearly all parts of the tree, from the roots to the leaves, play a part in filtering and removing pollution from the air. Trees can improve air quality efficiently and inexpensively by providing many eco-services:

- Reducing air temperatures
- Increasing oxygen levels
- Intercepting and trapping particulate matter air pollution
- Absorbing gaseous pollutants
- Binding or absorbing water soluble pollutants on leaf surfaces
- Reducing ground-level ozone (smog) levels

SLOWING CLIMATE CHANGE

Trees remove carbon dioxide (CO_2), a major greenhouse gas, from the air, which helps slow climate change. As trees breathe, they absorb CO_2 and release oxygen through their leaves. The average amount of carbon trapped (or sequestered) in a tree annually is 50 pounds, depending on the tree's growth rate, age, size and maintenance. An average SUV, driving 1500 miles per month emits 31,151 lbs pounds of carbon each year. A person would have to plant 70 trees to offset the carbon of 1 SUV's emissions. Trees also reduce carbon levels in the air by providing shade, which reduces energy use, resulting in reduced CO_2 emissions from power plants. But, trees can also contribute to the release of carbon back into the atmosphere: burning wood leads to large amounts of released carbon dioxide and dead or dying trees naturally emit carbon as they decay. Lawnmowers, chippers, and other fossil-fuel burning tree maintenance machinery also contribute to carbon emissions. So, plan your tree planting and maintenance activities carefully. A healthy tree is a wonderful thing!

BURNING FOSSIL FUEL PRODUCES CO_2

TREES ABSORB CO_2 DIRECTLY

TREES PRODUCE OXYGEN

TREES REDUCE CO_2 BY CURBING ENERGY USE