

# *HOME BUILDING IN A HOT CLIMATE*

## **Pick the right lot**

Ideally, the best view should be to the south. It's easy to design overhangs for good sun control on the south side of the house, since the sun path is high in summer and low in winter. You have no control on the east and west sides, summer or winter. North views are fine if your location isn't too cold and windy in winter.

## **Pick the right house shape**

A long rectangle with the short ends facing east and west will suffer the least from the hot sun. This shape also works best for cross ventilation.

## **Spend your money on quality, durability, and beauty, not size**

Build a house that's the right size for your family. Remember—you have to furnish, clean, maintain, heat and cool the whole thing. Smart design can make a smaller house seem bigger and bad design can make a big house seem cramped. Wouldn't you rather have a small diamond than a big rhinestone?

## **Shade, shade, shade**

Shading outside the house works best: trees, covered porches, roof overhangs, awnings, etc. Use southern low-e window glass or solar screens. Double pane windows do not keep out the sun's hot rays; however, they do help retain heat in winter, are more secure, quieter, and reduce condensation on the glass.

## **Install a tile or metal roof**

They cost more initially than composition shingles, but really pay off in energy savings and replacement costs in the longer run. They should last a lifetime and are a good surface for collecting rainwater. If you can't afford tile or metal, be sure you have roof radiant barrier and good attic ventilation (continuous under the eaves and at the ridge), or insulate at the rafters instead of the attic floor and completely avoid ventilating the attic altogether.

## **Don't put ductwork and cooling equipment in the attic**

In summer, attic temperatures may reach over 140 degrees. Duct insulation isn't very good, and ducts always leak, even in new houses. If ducts and equipment do end up in the attic, be sure to install radiant barrier and good ventilation, or insulate at the rafters instead of the attic floor and completely avoid ventilating the attic altogether.

## **Get a well-designed and installed cooling system**

- Get equipment sized exactly for the design and construction of the house. All too often, equipment is oversized. That's bad, because it never runs long enough to run efficiently, and in humid areas it doesn't have time to dehumidify the air. Moist air is uncomfortable and promotes mold growth.
- Choose a high-efficiency equipment (minimum 12.0 SEER or higher).
- Have ducts sealed with mastic sealer, not duct tape and have the ducts tested for leakage.
- Be sure the duct runs are short, straight, and taut.
- Get a good filter (a pleated media - the thicker, the better).
- Augment cooling with ceiling fans.

## **Pick light colors**

Light exterior colors reflect the sun's heat. Light interior colors mean you won't need as much electric light inside. Remember, light bulbs produce lots of heat, which your air conditioner must overcome (unless they are fluorescent).

## **Avoid skylights, sunrooms, and low-quality recessed-can lights**

If you need more light, paint the room white, install better lighting, or put in more windows facing north and south. If you like recessed-can lights, get the "air-tight" kind.

**Install vent fans in high humidity areas**

Get quiet, well-sized fans for kitchens, baths, and laundries, and be sure they are vented to the outside, not the attic. Get warm, damp air out of the house, so mold doesn't grow. And speaking of mold, don't install a vapor barrier unless you live north of Lubbock. Don't use vinyl wallpaper anywhere - it traps moisture and keeps building materials from drying out. Moisture = rot and mold.

**Minimize toxic fumes inside**

Install hard surface flooring (ceramic tile, concrete, wood) as much as possible. Minimize carpet. Avoid vinyl products. Use low-toxin paints and finishes (water-based, with VOC levels under 150 grams/liter).

**Plant a smart landscape**

Choose plants that are native or well-adapted to your area. Plant turf-grass varieties that require the least water and are best for the amount of sun they will get. Don't plant more lawn than necessary. Be sure landscaping has plenty of topsoil and mulch.