

# PASSIVE SOLAR HEATING RULES OF THUMB

For cold winter - temperate climates

## SUN TEMPERING – Minimal Thermal Storage

No extra thermal mass -

South glass max of 7% of floor area

## DIRECT GAIN - Balanced Mass & Glass for Thermal Storage

Includes thermal mass

South glass max of 12% of floor area.

Increase ratio beyond 12% with caution.

## COMBINATION SYSTEMS

direct and indirect gain

South glass max of 20% of floor area

Increase ratio beyond 20 % with caution

## HEAT STORAGE - THERMAL MASS

Beyond 7% south glass / floor area add mass/thermal storage.

- 1 s.f. direct gain glass to 5.5 s.f. of floor mass in direct sun
- 1 s.f. direct gain glass to 40 s.f. of floor mass **not** in direct sun

- Stone or Concrete Thermal Mass

4" optimal - 2" almost as good

- 1 s.f. direct gain glass to 8.3 s.f. of wall mass

Dark colors for optimal charging of mass

Light color to distribute heat through house earlier in the day.

N - S walls can be charged by sun on both sides

- TROMBE WALLS

Flat Black best

Selective Surface can improve performance by 72%

## WATER

Walls

Fountains

\* Note- Glass to mass ratios originated with clear thermo-pane and no low e coatings or high solar heat gain coatings. With different glazing options, these ratios would be adjusted accordingly. Orientation, Climate, micro climate and building design must all be considered.