

Green Initiative

Architectural Considerations

- 0100 General Requirements
 - 0200 Site Selection
 - 0300 Concrete
 - 0400 Masonry
 - 0500 Metals
 - 0600 Wood and Plastics
- 0700 Thermal and Moisture Protection
 - 0800 Doors and Windows
 - 0900 Finishes
 - 1000 Specialties
 - 1100 Equipment
 - 1200 Furnishing
- 1300 Special Construction
 - 1400 Conveying Systems
- 2200 Plumbing
- 2300 Heating, Cooling and Ventillation
 - 2600 Electrical
 - 3300 Utilities

Green Initiative

0100 General Requirements

In mid-December 2007, the AIA Board adopted a new section of the Code of Ethics and Professional Conduct. Canon VI deals solely with sustainable design and states:

Canon VI

Obligations to the Environment

Members should promote sustainable design and development principles in their professional activities.

Sustainable Design: In performing design work, Members should be environmentally responsible and advocate sustainable building and site design.

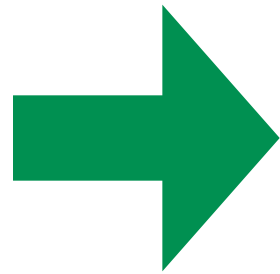
Sustainable Development: In performing professional services, Members should advocate the design, construction, and operation of sustainable buildings and communities.

Sustainable Practices: Members should use sustainable practices within their firms and professional organizations, and they should encourage their clients to do the same.

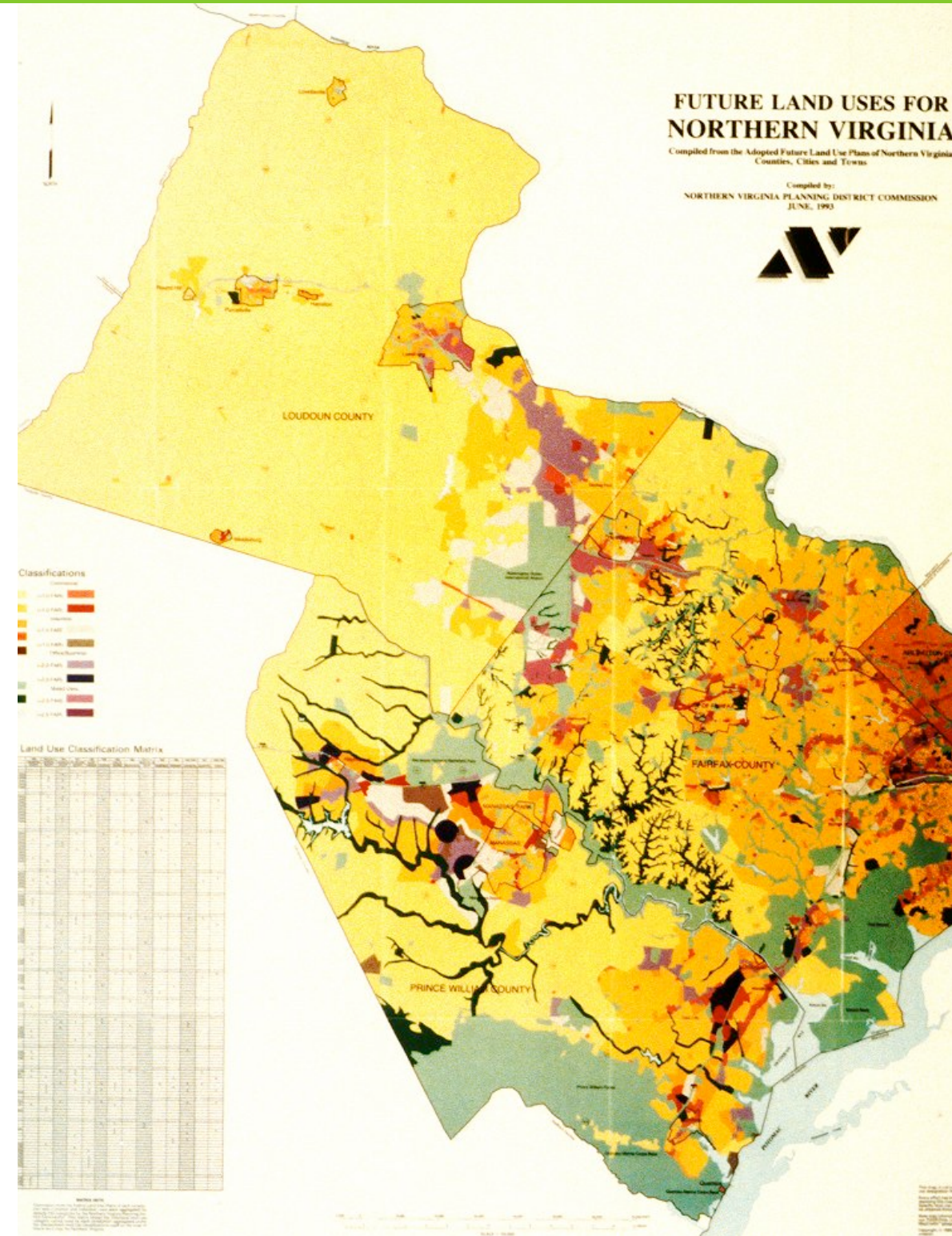
The Architect shall present its preliminary evaluation to the Owner and shall discuss with the Owner alternative approaches to design and construction of the Project, including the feasibility of incorporating environmentally responsible design approaches. The Architect shall reach an understanding with the Owner regarding the requirements of the Project.

The Architect shall consider environmentally responsible design alternatives, such as material choices and building orientation, together with other considerations based on program and aesthetics, in developing a design that is consistent with the Owner's program, schedule, and budget for the Cost of the Work. The Owner may obtain other environmentally responsible design services.

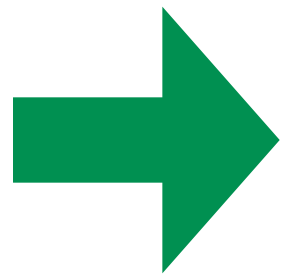
0200 Site Selection



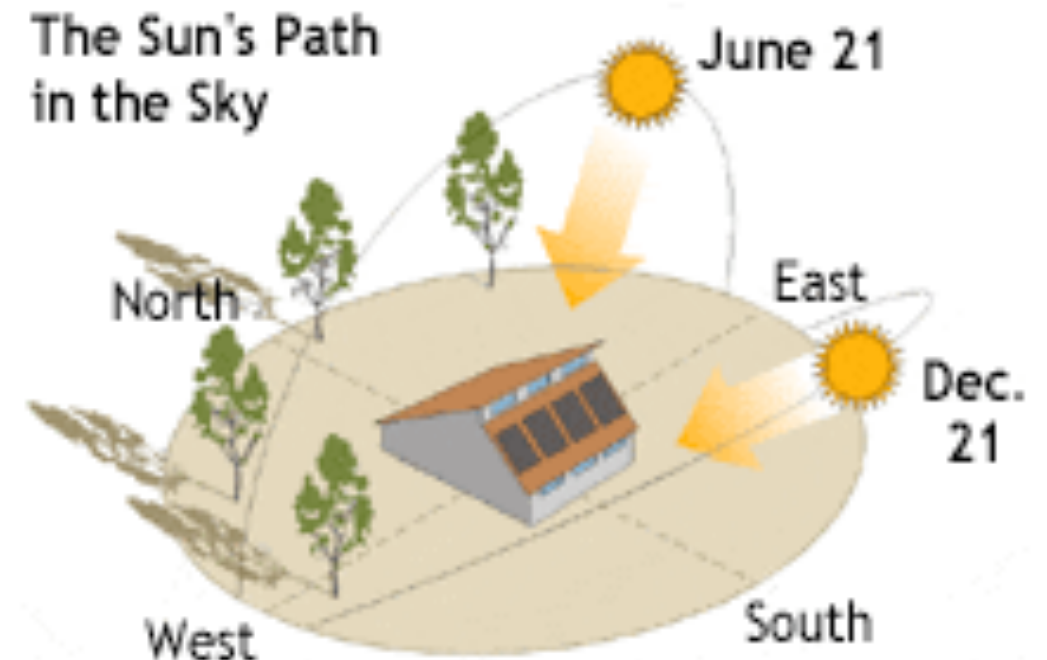
- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



0200 Site Selection

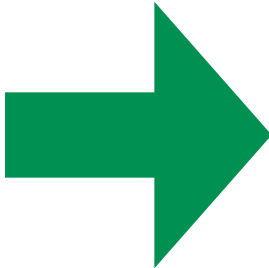


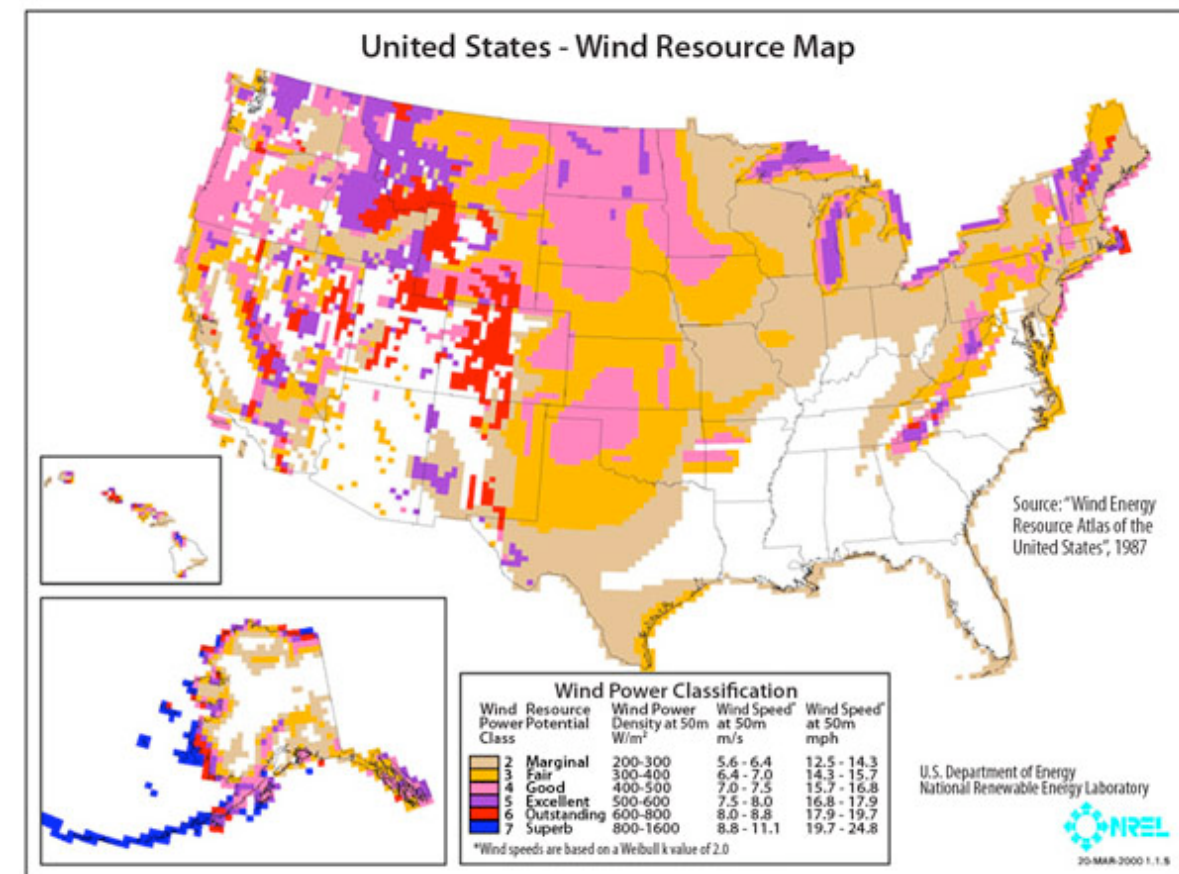
- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

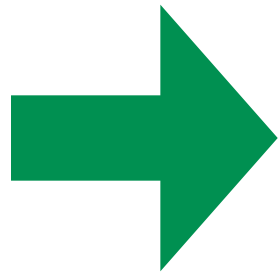
0200 Site Selection

- 
- ☼ Land use
 - ☼ Solar orientation
 - ☼ Wind orientation
 - ☼ Vegetation
 - ☼ Topography & Site Drainage
 - ☼ Utilities
 - ☼ Whole-building design
 - ☼ Adjacent uses
 - ☼ Carbon footprint



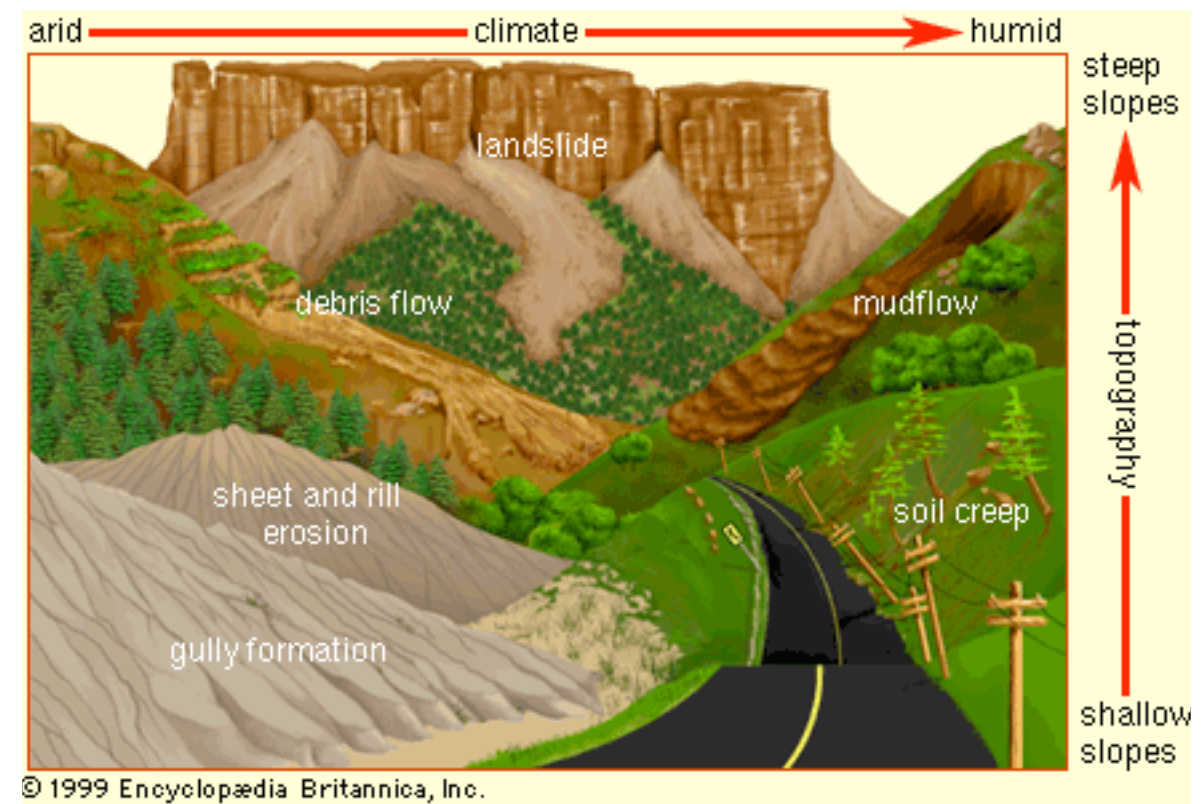
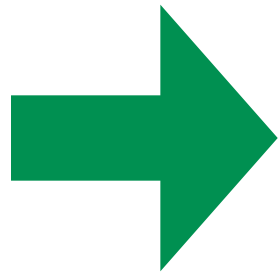
0200 Site Selection

- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



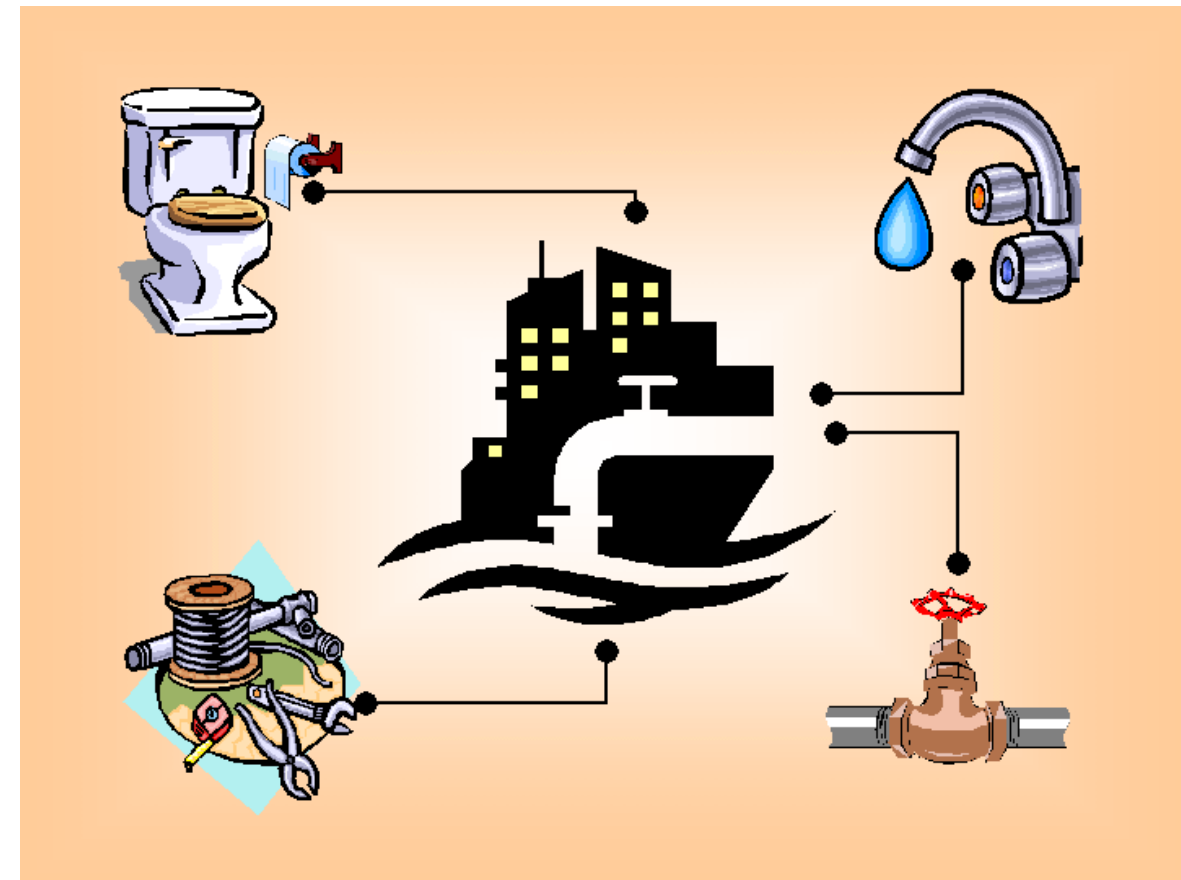
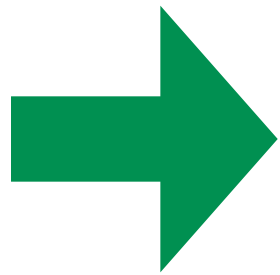
0200 Site Selection

- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



0200 Site Selection

- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



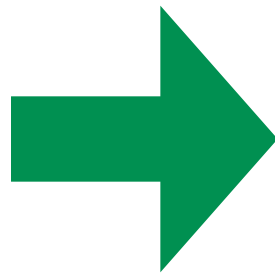
0200 Site Selection

- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



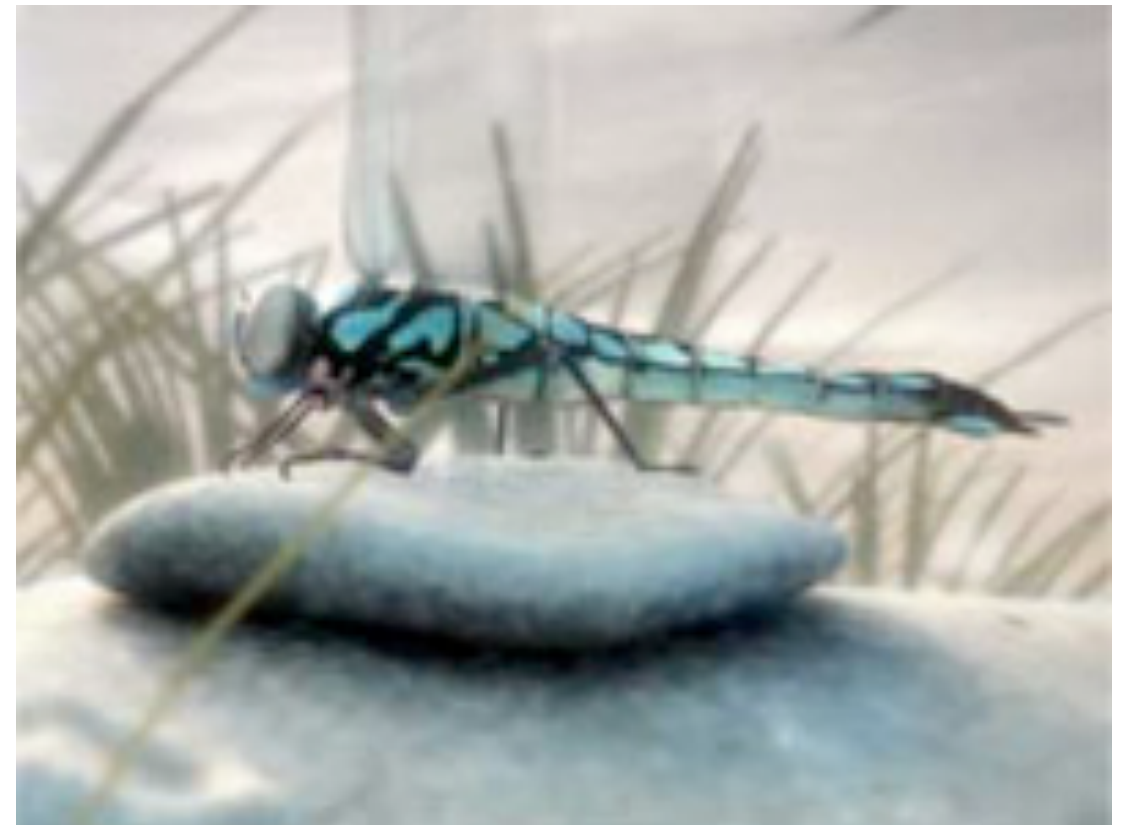
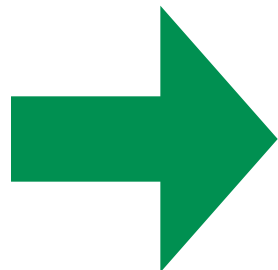
0200 Site Selection

- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



0200 Site Selection

- ☼ Land use
- ☼ Solar orientation
- ☼ Wind orientation
- ☼ Vegetation
- ☼ Topography & Site Drainage
- ☼ Utilities
- ☼ Whole-building design
- ☼ Adjacent uses
- ☼ Carbon footprint



<http://www.carbonfootprint.com/sand.html>

0300 Concrete

- 
- ☼ Cement production is actually a major contributor to worldwide carbon dioxide emissions
 - ☼ Concrete is one of the world's most widely used materials – it's hard to imagine life without it
 - ☼ But having to make so much is a problem
 - ☼ Production of concrete's key component, cement, accounts for at least five percent of global carbon dioxide emissions
 - ☼ Unfortunately, current cement manufacturing methods require very high temperatures, resulting in high carbon dioxide emissions



0300 Concrete

- ☼ Cement production is actually a major contributor to worldwide carbon dioxide emissions
- ☼ Concrete is one of the world's most widely used materials – it's hard to imagine life without it
- ☼ But having to make so much is a problem
- ☼ Production of concrete's key component, cement, accounts for at least five percent of global carbon dioxide emissions
- ☼ Unfortunately, current cement manufacturing methods require very high temperatures, resulting in high carbon dioxide emissions



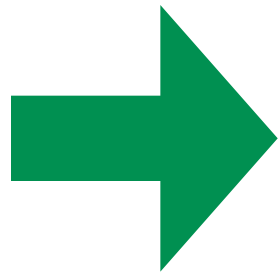
0300 Concrete

- ☼ Cement production is actually a major contributor to worldwide carbon dioxide emissions
- ☼ Concrete is one of the world's most widely used materials – it's hard to imagine life without it
- ☼ But having to make so much is a problem
- ☼ Production of concrete's key component, cement, accounts for at least five percent of global carbon dioxide emissions
- ☼ Unfortunately, current cement manufacturing methods require very high temperatures, resulting in high carbon dioxide emissions



0300 Concrete

- ☼ Cement production is actually a major contributor to worldwide carbon dioxide emissions
- ☼ Concrete is one of the world's most widely used materials – it's hard to imagine life without it
- ☼ But having to make so much is a problem
- ☼ Production of concrete's key component, cement, accounts for at least five percent of global carbon dioxide emissions
- ☼ Unfortunately, current cement manufacturing methods require very high temperatures, resulting in high carbon dioxide emissions



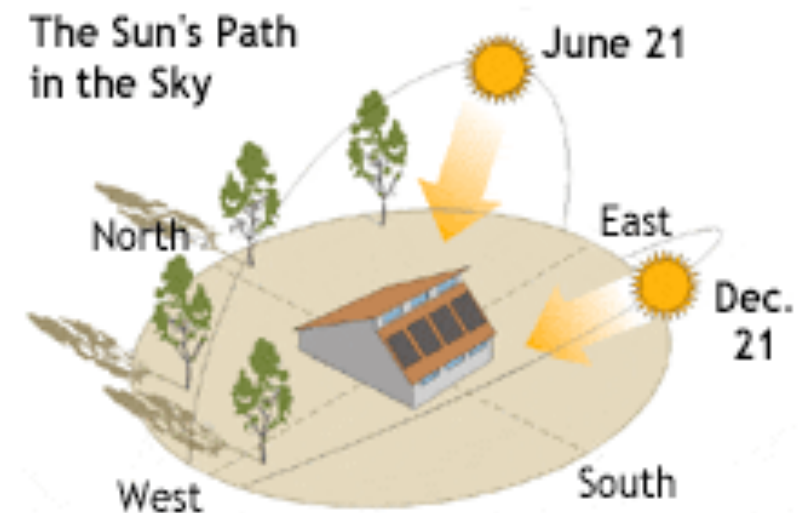
0300 Concrete

- ☼ Cement production is actually a major contributor to worldwide carbon dioxide emissions
- ☼ Concrete is one of the world's most widely used materials – it's hard to imagine life without it
- ☼ But having to make so much is a problem
- ☼ Production of concrete's key component, cement, accounts for at least five percent of global carbon dioxide emissions
- ☼ Unfortunately, current cement manufacturing methods require very high temperatures, resulting in high carbon dioxide emissions



2300 PASSIVE SOLAR

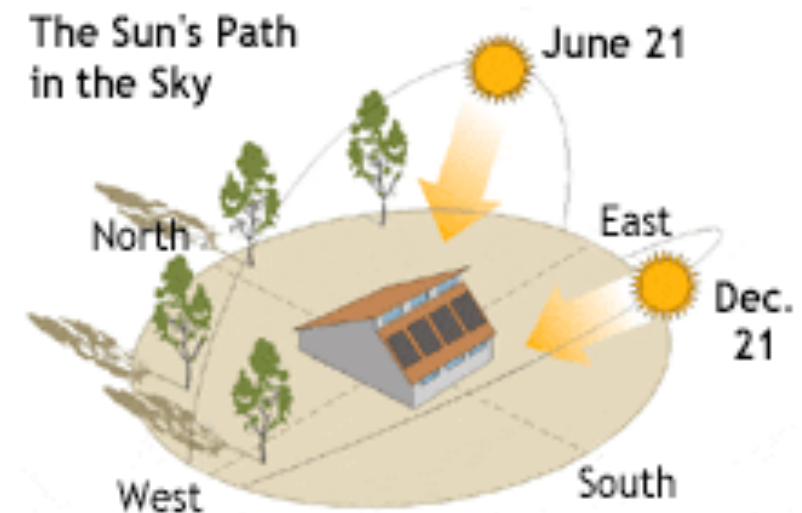
- 
- ☼ Passive solar energy means that mechanical means are not employed to utilize solar energy
 - ☼ The building should be elongated on an east-west axis
 - ☼ The building's south face should receive sunlight between the hours of 9:00 A.M. and 3:00 P.M. (sun time) during the heating season
 - ☼ Interior spaces requiring the most light and heating and cooling should be along the south face of the building. Less used spaces should be located on the north
 - ☼ An open floor plan optimizes passive system operation



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

2300 PASSIVE SOLAR

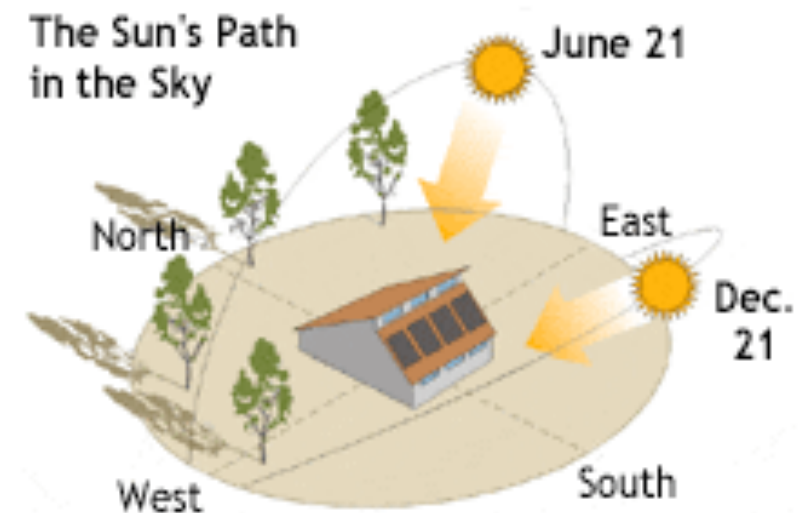
- ☀ Passive solar energy means that mechanical means are not employed to utilize solar energy
- ☀ The building should be elongated on an east-west axis
- ☀ The building's south face should receive sunlight between the hours of 9:00 A.M. and 3:00 P.M. (sun time) during the heating season
- ☀ Interior spaces requiring the most light and heating and cooling should be along the south face of the building. Less used spaces should be located on the north
- ☀ An open floor plan optimizes passive system operation



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

2300 PASSIVE SOLAR

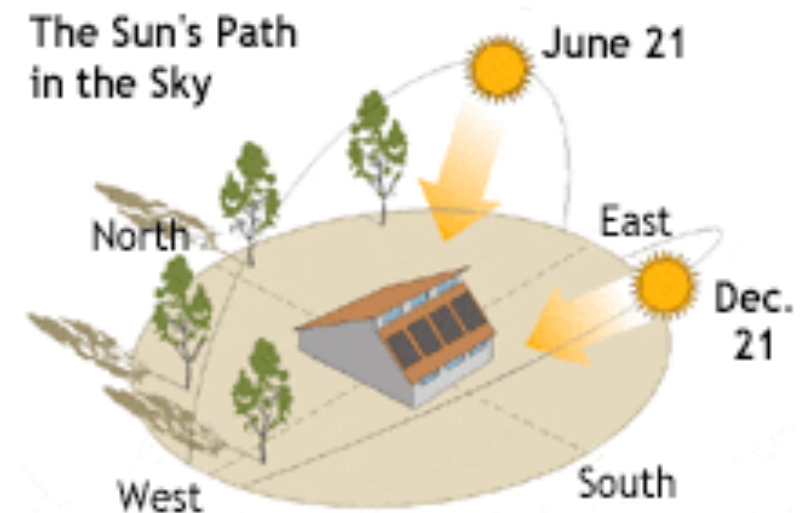
- ☼ Passive solar energy means that mechanical means are not employed to utilize solar energy
- ☼ The building should be elongated on an east-west axis
- ☼ The building's south face should receive sunlight between the hours of 9:00 A.M. and 3:00 P.M. (sun time) during the heating season
- ☼ Interior spaces requiring the most light and heating and cooling should be along the south face of the building. Less used spaces should be located on the north
- ☼ An open floor plan optimizes passive system operation



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

2300 PASSIVE SOLAR

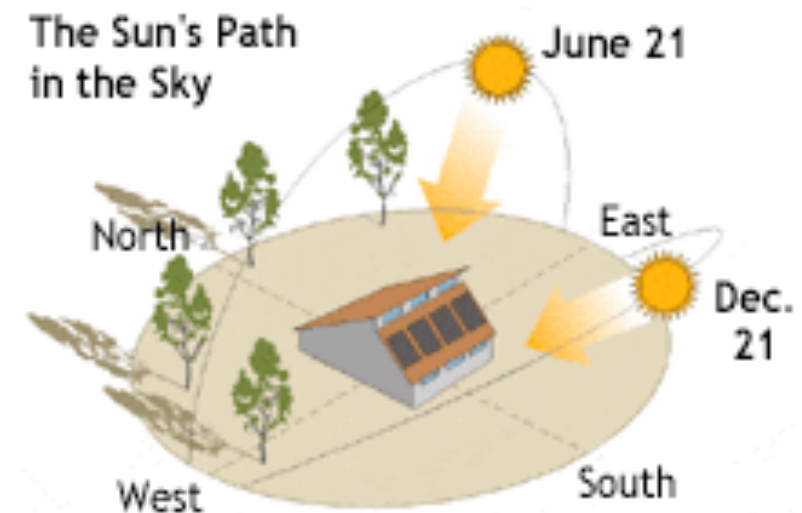
- ☼ Passive solar energy means that mechanical means are not employed to utilize solar energy
- ☼ The building should be elongated on an east-west axis
- ☼ The building's south face should receive sunlight between the hours of 9:00 A.M. and 3:00 P.M. (sun time) during the heating season
- ☼ Interior spaces requiring the most light and heating and cooling should be along the south face of the building. Less used spaces should be located on the north
- ☼ An open floor plan optimizes passive system operation



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

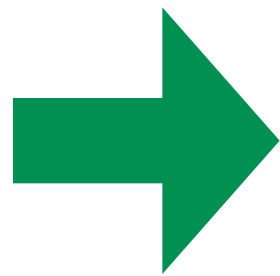
2300 PASSIVE SOLAR

- ☀ Passive solar energy means that mechanical means are not employed to utilize solar energy
- ☀ The building should be elongated on an east-west axis
- ☀ The building's south face should receive sunlight between the hours of 9:00 A.M. and 3:00 P.M. (sun time) during the heating season
- ☀ Interior spaces requiring the most light and heating and cooling should be along the south face of the building. Less used spaces should be located on the north
- ☀ An open floor plan optimizes passive system operation



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

2300 PASSIVE SOLAR



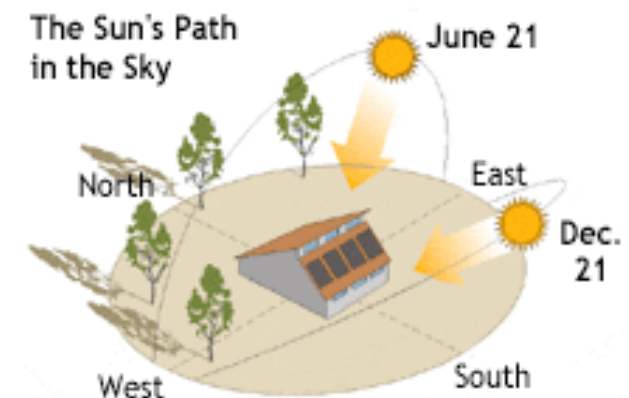
Two primary elements of passive solar heating are required:



South facing glass

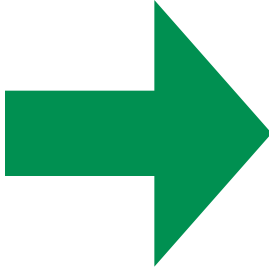


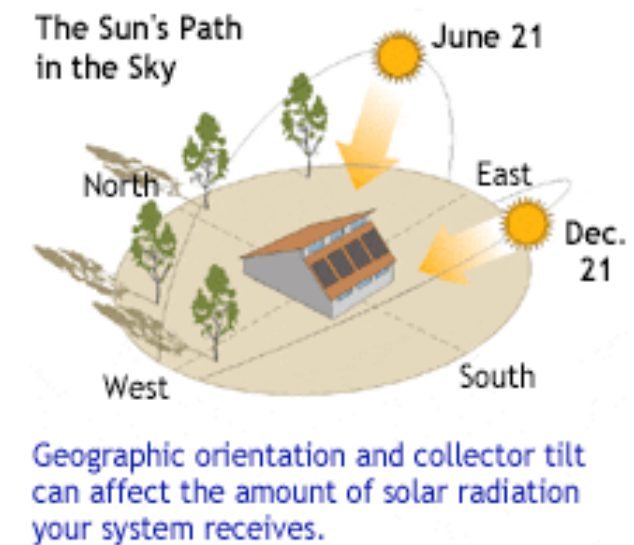
Thermal mass to absorb, store, and distribute heat



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

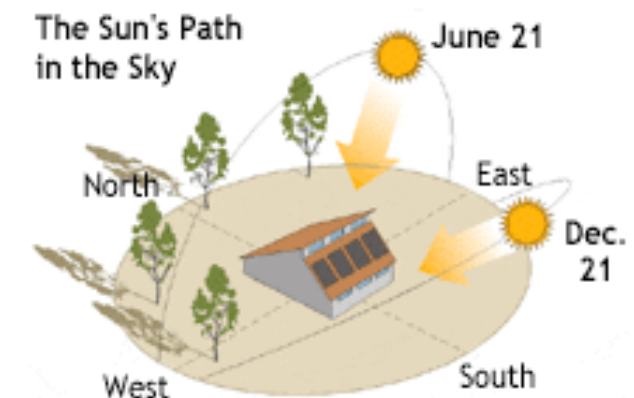
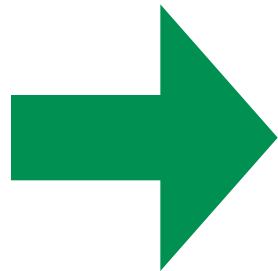
2300 PASSIVE SOLAR

- 
- ☀ Two primary elements of passive solar heating are required:
 - ☀ South facing glass
 - ☀ Thermal mass to absorb, store, and distribute heat



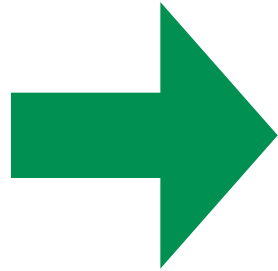
2300 PASSIVE SOLAR

- ☀ Two primary elements of passive solar heating are required:
- ☀ South facing glass
- ☀ Thermal mass to absorb, store, and distribute heat



Geographic orientation and collector tilt can affect the amount of solar radiation your system receives.

2300 PASSIVE SOLAR



There are three approaches to passive systems - direct gain, indirect gain, and isolated gain



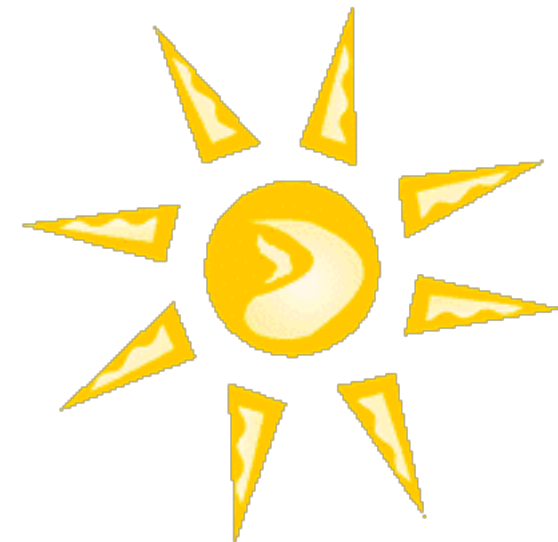
Direct Gain Solar Heating: Thermal mass in the interior absorbs the sunlight and radiates the heat at night



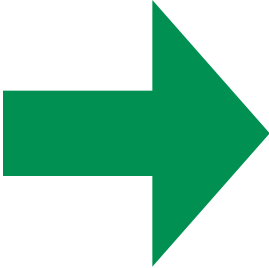
Indirect Gain Solar Heating: Thermal storage wall systems (Trombe Walls)

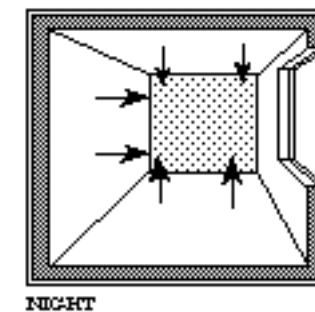
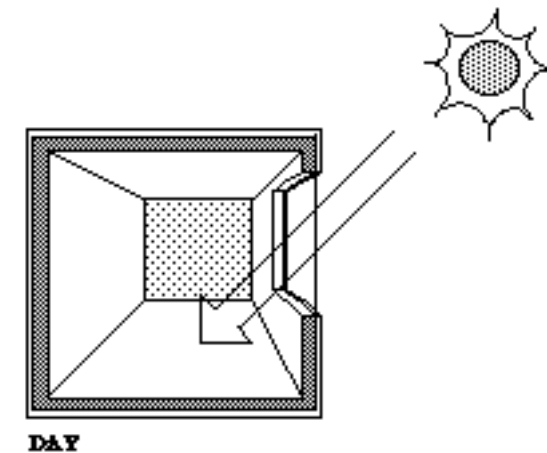


Isolated Gain system has its integral parts separate from the main living area of a house



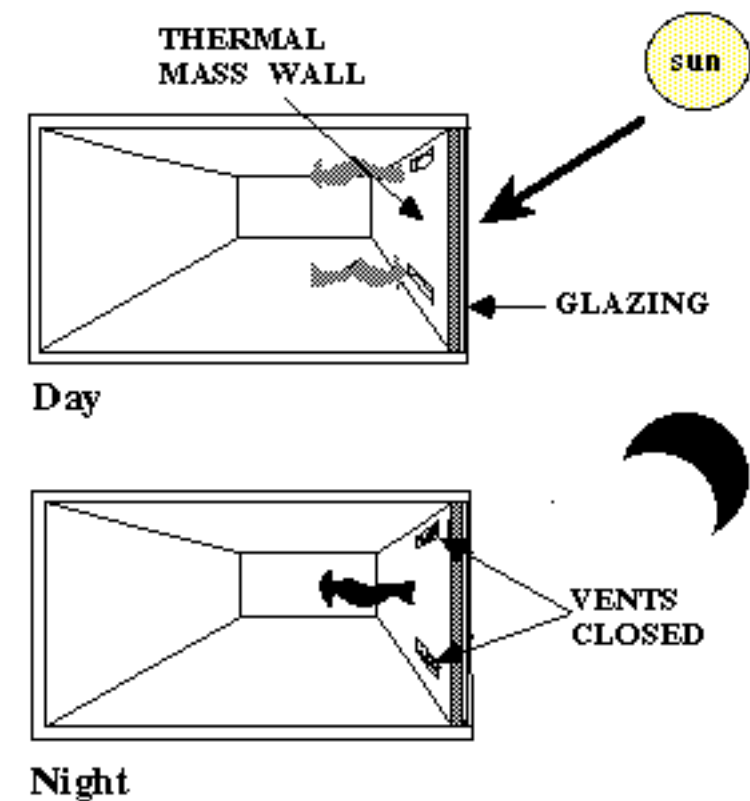
2300 PASSIVE SOLAR

- 
- ☀ There are three approaches to passive systems - direct gain, indirect gain, and isolated gain
 - ☀ Direct Gain Solar Heating: Thermal mass in the interior absorbs the sunlight and radiates the heat at night
 - ☀ Indirect Gain Solar Heating: Thermal storage wall systems (Trombe Walls)
 - ☀ Isolated Gain system has its integral parts separate from the main living area of a house



2300 PASSIVE SOLAR

- ☀ There are three approaches to passive systems - direct gain, indirect gain, and isolated gain
- ☀ Direct Gain Solar Heating: Thermal mass in the interior absorbs the sunlight and radiates the heat at night
- ☀ Indirect Gain Solar Heating: Thermal storage wall systems (Trombe Walls)
- ☀ Isolated Gain system has its integral parts separate from the main living area of a house



2300 PASSIVE SOLAR

- ☀ There are three approaches to passive systems - direct gain, indirect gain, and isolated gain
 - ☀ Direct Gain Solar Heating: Thermal mass in the interior absorbs the sunlight and radiates the heat at night
 - ☀ Indirect Gain Solar Heating: Thermal storage wall systems (Trombe Walls)
- ➡ ☀ Isolated Gain system has its integral parts separate from the main living area of a house

